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National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE
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NMFS Tracking
No. 2003/01309

July 26, 2004

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Mr. Daniel Harkenrider
Area Manager
Columbia River Gorge National Scenic Area
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Re: Endangered Species Act section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for USDA Forest Service Programmatic Activities, Gifford Pinchot National Forest Columbia River Gorge National Scenic Area, Washington.

Dear Ms. Lavendel and Mr. Harkenrider:

In accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended, 16 U.S.C. 1536, and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996, 16 U.S.C. 1855, the attached document transmits NOAA's National Marine Fisheries Service (NOAA Fisheries) Biological Opinion (Opinion) and MSA consultation on the proposed USDA Forest Service Programmatic Activities, Gifford Pinchot National Forest (GPNF) Columbia River Gorge National Scenic Area (CRGNSA), Washington.

The Forest Service (FS) has determined that the proposed action was likely to adversely affect the Lower and Middle Columbia River (LCR, MCR) steelhead (*Oncorhynchus mykiss*), Columbia River (CR) chum (*O. keta*) salmon, LCR and Puget Sound (PS) chinook salmon (*O. Tshawytscha*) Evolutionarily Significant Units. The FS also requests conferencing on LCR/Southwest Washington (LCSW) coho (*O. kisutch*) salmon. Formal consultation was initiated on February 26, 2004.



This Opinion reflects formal consultation and an analysis of effects covering listed steelhead, chum, and chinook salmon in the GPNF and the CRGNSA. The Opinion is based on information provided in the biological evaluation received by NOAA on October 17, 2003, subsequent information transmitted by telephone conversations, email transmissions, mail and meetings. A complete administrative record of this consultation is on file at the Washington State Habitat Office.

NOAA Fisheries concludes that the implementation of the proposed project is not likely to jeopardize the continued existence of LCR, MCR steelhead, CR chum, LCR and PS chinook salmon. Please note that the incidental take statement, which includes reasonable and prudent measures and terms and conditions, was designed to minimize take.

The MSA consultation concluded that the proposed project may adversely impact designated Essential Fish habitat (EFH) for chinook (*O. tshawytscha*), coho (*O. kisutch*), and pink salmon (*O. gorbuscha*) salmon. Specific Reasonable and Prudent Measures of the ESA consultation, Terms and Conditions identified therein, would address the negative effects resulting from the proposed COE actions. Therefore, NOAA Fisheries recommends that they be adopted as EFH conservation measures.

If you have any questions, please contact Karla Reece of the Washington State Habitat Office at (360) 753-4374 or email at karla.reece@noaa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Russell M. Strach for".

D. Robert Lohn
Regional Administrator

Enclosure

Endangered Species Act - Section 7 Consultation Biological Opinion

And

Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

USDA Forest Service Programmatic Activities,
Gifford Pinchot National Forest
Columbia River Gorge National Scenic Area, Washington.

Consultation

Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: July 26, 2004

Issued by:



D. Robert Lohn
Regional Administrator

NOAA Fisheries No: 2003/01309

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1.0 INTRODUCTION

1.1 Consultation History

On October 14, 2003, the NOAA's National Marine Fisheries Service (NOAA Fisheries) received a Biological Assessment (BA) and Essential Fish Habitat (EFH) Assessment from the United States Department of Agriculture, Forest Service (FS) regarding the Forest Service Programmatic Activities in the Gifford Pinchot National Forest (GPNF) and the Columbia River Gorge National Scenic Area (CRGNSA), and a request for consultation under both section 7 of the Endangered Species Act (ESA) and the EFH provisions of the Magnuson-Stevens Act (MSA) for 15 programmatic categories of land management activities in Washington (Appendix A, Figure 1). The proposed project area occurs within the geographic range of the Lower and Middle Columbia River (LCR, MCR) steelhead (*Oncorhynchus mykiss*), Columbia River (CR) chum (*O. keta*), LCR and Puget Sound (PS) chinook (*O. Tshawytscha*), and LCR/Southwest Washington (LCSW) coho (*O. Kisutch*) salmon, which is a candidate for listing. The FS has determined that the project "may affect, and is likely to adversely affect" LCR and MCR steelhead, CR chum, LCR and PS chinook salmon, all of which are listed as threatened under the ESA. The FS also requests conferencing on LCSW coho salmon.

The BA and EFH analysis were prepared by fisheries biologists from the GPNF and the CRGNSA. NOAA Fisheries staff provided technical assistance as part of the Gifford Pinchot Level 1 ESA Consultation Streamlining Team (Level 1 Team) in accordance with the February 26, 1997 (revised June 1999), consultation streamlining guidelines (NMFS *et al.* 1999). In the BA, the FS used procedures established by NOAA Fisheries (NMFS 1996a) to determine the effects of the proposed actions relative to the environmental baseline at the project¹ (or site) and watershed² scales, using criteria based on the biological requirements of Pacific salmon (*i.e.*, salmon and steelhead).

The proposed project design criteria (Appendix A, Table 2) were developed by the Level-1 Team as conservation measures, and are adopted as terms and conditions of the incidental take statement that accompanies this Biological Opinion (Opinion). The process of developing conservation measures narrowed the scope of proposed activities to include only those with effects that are likely to be minor, repetitive, and predictable. Proposed activities that may have unpredictable or site-specific effects require an individual consultation and are not covered under this Opinion.

¹ Project sites are areas of variable size, but typically range from tens to hundreds of acres, and are where specific management activities take place (FEMAT 1993, p. V-59).

² A watershed is the drainage basin contributing water, organic material, dissolved nutrients, and sediments to a stream or lake. For the purposes of this consultation, watershed will refer to the "fifth field" hydrologic unit code (HUC) watersheds which have been cooperatively delineated by the FS. Watersheds are made up of smaller drainage basins known as subwatersheds. Watersheds (and some large subwatersheds or aggregates of watersheds) are the proper size for conducting Watershed Analysis and assessing many key processes and features affecting ecosystem function.

1.2 Proposed Action

The proposed action is the implementation by the FS of land management activities (NLAA and LAA) in each of the 15 programmatic categories listed in Appendix A, Table 1. The BA describes the actions within each programmatic category, the environmental baseline in the action area, and the potential effects of the actions on LCR, MCR steelhead, CR chum, LCR and PS chinook and LCSW coho salmon.

The FS developed a watershed activity table for each fifth field watershed and summarized average annual totals for each activity within the entire action area (BA: Appendix E, page 281). The tables forecast the amount of “may affect” programmatic actions that the action agencies expect to occur each fiscal year within each programmatic category over the next five years (fiscal years 2004-2008) within each watershed. The forecasted numbers are projected estimates based on past funding levels, past reporting and program priorities, program manager’s projections, professional judgement, and existing strategies that direct work to specific watersheds.

Descriptions of each programmatic activity category are provided below. All activities would be completed in compliance with the FS’ respective best management practices (BMPs) and in accordance with project design criteria (PDCs). A table describing the proposed activities, the project design criteria, typical effects levels, and the reporting requirements for each category was provided by the FS (BA: pages 49-73). An excerpt of the table containing the subject programmatic categories has also been included in this Opinion in Appendix A, Table 2.

The proposed action requires an action agency fisheries biologist to individually review each proposed activity to be completed under this programmatic Opinion prior to implementation to determine whether the activity meets the conditions of the programmatic BA and this Opinion. If the activity meets the conditions, the fisheries biologist would determine the activity’s effects on listed fish. A written record of the effects analysis and determination (Appendix C) would be filed with each project’s related paperwork at the appropriate FS unit. Additionally, all LAA projects will be reviewed by the Level 1 team for consistency with the PDC’s. Activities that do not meet the programmatic conditions or exceed the range of effects analyzed in the BA could not be conducted under the proposed action and would be referred for individual consultation, if appropriate.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

The objective of consultation is determine whether a proposed Federal activity is likely to jeopardize the continued existence of endangered or threatened species, or destroy or adversely modify its designated critical habitat. Critical habitat is not currently designated for the LCR steelhead, LCR chinook, and CR chum ESU's, and that analysis accordingly does not appear below. An ESU is considered a distinct population segment suitable for protection under the ESA. 16 U.S.C. 1532 (16). This Opinion records the results of interagency consultation for 15 programmatic categories proposed by the FS within the GPNF and the CRGNSA are likely to jeopardize the continued existence of LCR, MCR steelhead, CR chum, LCR and PS chinook, and LCSW coho (candidate) salmon.

The listing status and history, and sources of biological information and population trends for each ESU addressed in this Opinion are summarized in Appendix A, Table 3. Essential elements of anadromous salmonid habitat are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. Based on migratory and other life history timing, it is likely that adult and/or juvenile life stages of the 6 subject ESUs would be present in the action area when activities within some of the 15 programmatic categories addressed in this Opinion would be carried out. The effects of each individual action will vary in timing, duration, and intensity.

2.1.1 Evaluating Proposed Actions

The standards for determining jeopardy as set forth in section 7(a)(2) of the ESA are defined by 50 CFR 402.02 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps, and when appropriate, combines them with the Habitat Approach: (1) Consider the biological requirements of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; and (4) determine whether the species potential for survival and recovery is appreciably diminished given the effects of the project, of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages.

The fourth step above requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (*i.e.*, effects on essential habitat features). The second part focuses on the species itself. It describes the action's effects on individual fish, or populations, or both, and places these effects in the context of the ESU as a whole. An ESU is considered a distinct population segment which can be afforded the protections of the ESA, based on its importance to the species genetic diversity. If jeopardy would result, step 5 is the identification by NOAA Fisheries of possible reasonable and prudent alternatives for the action that avoid jeopardy. Because critical habitat is not currently designated for the subject ESUs in this Opinion, NOAA Fisheries did not include a critical habitat analysis.

2.1.1.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements. Generally, biological requirements are those conditions necessary for the listed species to survive and recover to such naturally reproducing population levels, that protection under the ESA would be unnecessary. Species or ESUs not requiring ESA protection have the following attributes: population sizes large enough and with enough spacial structure to maintain genetic diversity and heterogeneity; the ability to adapt to and survive environmental variation; and they are self-sustaining in the natural environment, including a wide range of environmental and anthropogenic variations and disturbances.

The relevant biological requirements are those conditions necessary for listed Pacific salmon to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Essential habitat features for survival and recovery of Pacific salmon include: (1) Substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food (juvenile only), (8) riparian vegetation, (9) space, and (10) safe passage conditions.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, adult holding, spawning, egg incubation, and rearing. The current status of the subject ESUs, based on their risk of extinction, has not significantly improved since the species were listed and, in some cases, their status may have worsened.

2.1.1.2 Environmental Baseline

The environmental baseline represents the current set of conditions to which the effects of the proposed action would be added. The term "environmental baseline" means "the past and present impacts of all Federal, state, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed Federal projects in the Action Area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process" (50 CFR 402.02).

For the purposes of this consultation, the action area includes Federal lands administered by the FS, and non-Federal lands affected by the proposed programmatic actions, in basins within the GPNF and the Washington portion of the CRGNSA (Appendix B, Figure 1).

NOAA Fisheries guidance (NMFS 1996a) can be used to characterize the environmental baseline in terms of instream, riparian, and watershed elements that reflect geologic and climatic conditions in the action area. The Level 1 Team used procedures in NOAA Fisheries guidance (1996) to characterize the environmental baseline for 13 of the total of 27 fifth-field watersheds in the action area where the appropriate data were available (Appendix B, Figure 2). The Level 1 Team considers the 13 watersheds to be a biologically conservative representation of those watersheds not described in detail because they represent a range of baseline conditions, and have high levels of the proposed activities. However, due to the large number of fifth-field watersheds included in this consultation (27), a sub-sample of 13 were selected for intensive

analysis (see Analysis of Effects). A summary of environmental baseline conditions, based on the habitat indicators in NOAA Fisheries guidance (NMFS 1996), is presented in Appendix A, Table 4.

As noted above, the action area includes all areas directly or indirectly affected by the proposed action. The general action area for this Opinion can be defined as all 27 fifth field watersheds in which the proposed actions would occur. The LCR, MCR steelhead, CR chum, LCR and PS chinook, and LCSW coho salmon use the watersheds within the action area as habitat for rearing, feeding, spawning, incubation habitat, and migration. The environmental baseline of the action areas is dominated by conditions rated as functioning at risk or not properly functioning (see Appendix A, Table 4, and watershed Matrix of Pathways and Indicators (MPI) in BA). These conditions are the likely result of past land management activities.

NOAA Fisheries also considers the current status of the listed species; taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

Based on the best information available on the current status of LCR, MCR steelhead, CR chum, LCR and PS chinook, and LCSW coho, NOAA Fisheries' assumptions given the information available regarding population status, population trends, and the poor environmental baseline conditions within the action area, the environmental baseline does not currently meet all of the biological requirements for the identified ESUs. Actions that promote or do not retard attainment of properly functioning aquatic conditions, when added to the environmental baseline, are necessary to meet the needs of the species (survival and recovery for listed fish).

2.1.2 Analysis of Effects

2.1.2.1 General Assessment of Environmental Effects

In the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed actions on listed Pacific salmon.

The Level 1 Team reviewed the categories of programmatic actions and developed additional PDCs to further minimize the likelihood of adverse effects to LCR, MCR steelhead, CR chum, LCR and PS chinook, and LCSW coho salmon. In the BA, the FS described the typical range of effects ("Effects of the Actions"; BA pp. 74-110) of each activity category when PDCs described in the BA are followed. The BA summarizes the habitat indicators that could be affected (positively or negatively) by activities within each programmatic category (Appendix A, Table 5). The Level 1 Team, which includes one NOAA Fisheries representative, concluded that the effects analysis describes most effects that could be anticipated from the programmatic actions and that these effects would not differ between watersheds across the action area.

Because of their proximity and connections to streams, ecological conditions and processes in riparian areas strongly influence aquatic habitats. Riparian areas function to provide shade, cover, and channel structural elements; supply and process nutrients; support food webs; supply

substrate materials; stabilize streambanks; filter upland sediments; and provide linkages to side channels, floodplains, and groundwater (Sullivan *et al.* 1987, Gregory *et al.* 1991, FEMAT 1993, Spence *et al.* 1996).

Most riparian area functions affecting streams and anadromous fish (including bank stability, shade, litterfall, large wood recruitment) occur within a distance equal to the height of a site-potential tree from the edge of the streambank (FEMAT 1993, p. V-27; Spence *et al.* 1996, p. 216-220) for streams without a floodplain, and decline rapidly beyond that distance. Where there is a floodplain, riparian area functions may extend for a distance equal to the height of a site-potential tree from the edge of the floodplain, since during a flood the entire floodplain can function as the stream channel (Rhodes *et al.* 1994).

Fine sediment introduced into a waterway can cause turbidity. An increase in turbidity can affect fish and filter-feeding macro-invertebrates downstream of the work site. At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity; at higher levels, turbidity may interfere with feeding and may injure and even kill both juvenile and adult fish (Spence *et al.* 1996, Berg and Northcote 1985). Increases in sediment supply beyond the transport capability of the stream can cause stream channel instability, aggradation (sometimes to the extent that perennial streams become intermittent (Cederholm and Reid 1987), widening, loss of pools, and a reduction in gravel quality (Sullivan *et al.* 1987, Furniss 1991, Swanston 1991). For salmon, these changes can mean reduced spawning and rearing success when spawning areas are covered, eggs and fry suffocate or are trapped in redds, food abundance is reduced, and over-wintering habitat is reduced (Cederholm and Reid 1987, Hicks *et al.* 1991).

Buffer widths needed for filtration of sediment vary widely depending on site conditions. Transport of sediment by non-channelized flows increases with slope, and decreases with greater density of obstructions (vegetation, woody debris, rocks, etc.) within a buffer strip. (Belt *et al.* 1992, Spence *et al.* 1996 p. 219). Buffer widths needed for sediment filtration may vary from 30-90 m (98-295 feet) or more depending on slope, parent rock type, and other factors (Spence *et al.* 1996 p. 219, FEMAT 1993 p. V-38). However, streamside buffers are not effective in removing sediment carried in channelized flows (including intermittent streams) that originate outside of the buffer and continue through it (Belt *et al.* 1992).

Large woody material (LWM) is an important component of freshwater salmonid habitat. The presence of LWM regulates sediment and flow routing, influences stream channel complexity and stability, and provides hydraulic refugia and cover within stream systems (Bisson *et al.* 1987, Gregory *et al.* 1987, Hicks *et al.* 1991, Sedell and Beschta 1991, Bilby and Bisson 1998). Also LWM plays a key role in retaining salmon carcasses (Cederholm and Peterson 1985), a major source of nitrogen and carbon in stream ecosystems (Bilby *et al.* 1996). Large wood in streams has been reduced through a variety of human activities that include past timber harvest practices and associated activities, as well as the mandated cleanup activities that removed wood from streams throughout the region from the 1950s through the 1970s (FEMAT 1993, Bilby and Bisson 1998). The removal of trees within a distance equal to one site-potential tree height of streams (approximately 170 to 240 feet for mature conifer trees west of the Cascades, FEMAT 1993) have the potential to change the distribution, size, and abundance of large wood available for recruitment from streamside stands (Hicks *et al.* 1991, Ralph *et al.* 1994, Murphy 1995, Spence *et al.* 1996).

Headwater streams play an important role in watershed function. In headwater streams LWM increases sediment retention by forming depositional areas and dissipating energy; retains non-woody organic matter, allowing it to be biologically processed prior to downstream export as dissolved and particulate nutrients; and delays surface water passage, allowing it to be cooled by mixing with ground water (Sullivan *et al.* 1987, Murphy 1995, Spence *et al.* 1996, Bisson and Bilby 1998). Additional wood can be recruited to fish-bearing streams from upslope and upstream areas through landslides and debris flows (McGarry 1994, Reeves *et al.* 1995). In some areas, wood transported in this manner may constitute up to 50% of the wood recruited to downstream reaches (McGarry 1994). McDade *et al.* (1990) could not account for 48% of the existing LWM pieces in a study of recruitment from streamside areas.

Stream shading can be affected by vegetation removal within a distance equal to approximately three-quarters of a site potential tree height (FEMAT 1993, Spence *et al.* 1996). For small streams in the action area, the riparian buffer width needed to provide 75-90% of angular canopy density varies widely, from 30-145 feet (Beschta *et al.* 1987).

Water temperature within a stream is a function of both external factors, such as solar radiation, air temperature, precipitation and flow, and internal factors such as width-to-depth ratios, groundwater inputs, and hyporheic exchange (Poole and Berman 2001). Forest management can affect both external factors (*e.g.*, solar radiation to the stream can be increased by canopy reduction) and internal factors (*e.g.*, connectivity of streams with floodplains) (Bisson *et al.* 1987, Bilby and Bisson 1998). A review of the effects of riparian canopy removal on stream temperatures at the reach scale concluded that increases in average summer maximum temperatures of about 5.4 to 14.4 degrees Fahrenheit are common (Beschta *et al.* 1987). Reduction in large wood recruitment, increased landslide rates and sediment yield, more efficient sediment routing, reduced bank and channel stability from logging, road construction, and road use can combine to make streams wider and shallower, with fewer and shallower pools (Sullivan *et al.* 1987, Swanston 1991, Furniss 1991, Gregory *et al.* 1987, Hicks *et al.* 1991). Such streams are more susceptible to warming.

In microclimate studies by Brosofske *et al.* (1997), stream water temperature was unaffected by buffer sizes of 39-236 feet in width on streams that were 7-13 feet wide with moderate to steep slopes, in a variety of valley formations and with various aspects. One stream without a buffer was warmer than the other streams. Soil temperature (which can be affected by forest canopy openings), even outside the riparian buffers, had a strong influence on stream water temperature.

Microclimate functions are affected by activities in an area greater in width than what is commonly defined as the riparian area. Natural riparian microclimate extended at least 45 meters (148 feet) from streams in a Douglas-fir and western hemlock forest, although some variables extended up to 300 meters (984 feet) from streams (Brosofske *et al.* 1997). Edge effects from clearcut harvest of Douglas-fir extended 30 to greater than 240 meters (98 to greater than 787 feet) into the adjacent forest (Chen *et al.* 1995). Altered light regimes, humidity, wind, temperature, soil moisture and tree seed availability within buffer strips adjacent to harvested areas may foster a shift away from coniferous trees toward herbaceous or shrub vegetation that would not, over the long term, provide the volumes of wood needed to enhance fish habitat (Carlson *et al.* 1990, Hibbs and Giordano 1992). Shrubs may be less efficient at shading streams, leading to higher stream temperatures (Carlson *et al.* 1990).

2.1.2.1.1 Effects of the Specific Programmatic Activities. Riparian vegetation is disturbed when culverts are upgraded or when roads are brushed (i.e. when brush alongside roads is mechanically or manually removed). Brushing along roads that parallel the stream channel for several miles could increase water temperatures due to reduction of shade. Generally, however, brushing is limited to within four feet of the road ditchline and outside shoulder. Maintenance of roads that do not closely parallel streams is likely to have little or no effect on water temperature. When culverts are upgraded or additional ones installed, riparian shrubs and trees may be cut and excavated to access each site. This type of activity is likely to have no or a localized effect on water temperature because of the small amount of vegetation being removed. Brushing does not prune larger, overstory trees that provide most of the shade for streams. Falling and removal of hazard trees along roads may reduce the amount of large wood in riparian areas, thus reducing the potential for large wood recruitment to streams.

Road maintenance generally helps to limit sediment input and turbidity from road systems over time. However, the maintenance activities themselves can contribute some sediment to streams. Fine sediment can be generated from surface and drainage maintenance (e.g., grading and ditch cleaning), culvert replacement and repair, culvert cleaning, stabilization of storm-damaged roads, road repairs and stabilization, and removal of material from small landslides. The amount of fine sediment which could potentially enter a stream as a result of road maintenance activities will depend on the road surface type, weather conditions at the time the road maintenance is being performed, proximity of the road to the stream, whether road ditches are connected to streams, and the density and type of vegetation and other materials between the road and the stream. The proposed Project design Criteria (PDC) (e.g., seasonal restrictions of soil-disturbing maintenance activities) will limit the amount of fine sediment entering stream channels. Where sediment does enter the stream, effects on fish could include reduced respiration efficiency due to gill irritation and reduced feeding efficiency due to poor visibility. These effects should be short-term and should not seriously injure or kill listed fish.

Some sediment may enter stream channels because of heavy equipment use and disturbance of soils, particularly during culvert replacement actions. Short-term effects such as localized increases in fine sediment in certain stream reaches may occur. However, effects are unlikely to be prolonged, result in substantial changes in substrate composition, or decrease growth or survival of freshwater life stages of listed fish species. If projects are successfully implemented, substrate quality should actually improve over time, because chronic sediment sources would be corrected.

Contamination to the stream channel from the proposed activities could occur from equipment leaks (e.g., diesel fuel, oil, hydraulic fluids, and antifreezes) or spills from refueling during project implementation. However, following the proposed PDC of refueling at least 150 feet from a stream and having spill containment equipment on hand should reduce the risk of these hazards. Contamination may also occur from wastewater when bridges or culverts are repaired. Spilled wet concrete and wastewater runoff from concrete curing can cause rapid pH swings, which has the potential to kill or stress fish. However, most routine maintenance does not involve concrete and spills are infrequent. Additionally, following the proposed PDC for handling of fresh concrete of containing fresh concrete so that it does not come into contact with waterbodies or wetlands should reduce the risk of this hazard. Overall risk to water quality should be negligible. Asphalt used during resurfacing can leach out petroleum hydrocarbons,

which can be toxic and influence pH. Because routine maintenance generally patches small road segments, during dry conditions, hydrocarbon leaching should have a minimal effect on water quality. Extensive patching during wet periods may pose a greater risk and could be outside the typical range of effects analyzed in this programmatic.

Some dust abatement materials can also pose a risk to water quality. However, water is the only dust abatement material proposed under this programmatic consultation. Adherence to the relevant agency Best Management Practices (BMPs) and PDCs should minimize or avoid adverse effects (*e.g.*, sediment transport) from this dust abatement practice.

Streambanks may be disturbed when culverts are upgraded or replaced. Streambank vegetation may need to be removed from the work site causing streambanks to be temporarily exposed to streamflow until new vegetation is reestablished. Maintenance activities may result in a loss of riparian vegetation if the road is close to the channel, which could cause some localized streambank instability. NOAA Fisheries expects generation of sediment and reduction of stream shade from these activities to be minor.

Location of roads in relation to streams, specifically hillslope position, strongly influences how much surface and subsurface water flow a road intercepts. Mid-slope and lower slope roads have the greatest potential of intercepting and re-routing flows. Increased runoff from improperly maintained roads can increase sediment transport efficiency and peak stream flows which may destabilize stream channels and reduce habitat quality. With the installation of more or larger cross drain culverts, road maintenance can substantially improve hillslope drainage. How much drainage is improved depends on the number and locations of cross drains installed, the road's gradient and shape, the amount of water draining from the slope, and the type of precipitation (*e.g.*, rain, snow, etc.).

Activities that occur in or near streams can disturb or harm adult and juvenile fish. Culvert upgrades, removals, and valley bottom road removals may take several hours or days to complete. NOAA Fisheries expects that listed fish would move into habitats above or below work sites to avoid equipment in or near stream channels, and then quickly reoccupy the vacated habitats as flows are re-established within the completed channels.

2.1.2.1.2 Repair of Storm-Damaged and vandalized Roads. Riparian vegetation can be disturbed when culverts are upgraded or removed, oversteepened fills are pulled back, and when streamside roads are relocated. When culverts are upgraded or removed, riparian shrubs and trees may be cut and excavated to access each site and restore proper channel dimensions. This type of activity would only have localized effects on water temperature because of the small amount of vegetation being removed. Culvert removal or upgrading could only affect water temperature if multiple crossings were treated in the same drainage.

Removal of large slides and road reconstruction, repair or relocation of roads can decrease sediment loading to streams and over time improve habitat conditions if properly designed. However before such improvements can be realized, short-term sediment and turbidity increases can be anticipated. Sediment is most likely to come from project implementation. This can include the installation of waterbars, drain dips, and cross drains; the upsizing or removal of culverts; the pulling back of oversteepened road and landing fills, and outslipping roads.

The PDCs will help to limit sediment sources, however short-term turbidity increases can be expected. Nevertheless to qualify for coverage under the programmatic consultation these effects could not cause sustained turbidity increases or lead to any long-term changes in substrate.

Chemical contamination may occur from equipment leaks (diesel fuel, oil, hydraulic fluids, and antifreezes) or refueling during project implementation. However, the PDC of refueling at least 150 feet from a stream and having spill equipment on hand should reduce these hazards.

Reconstructing or relocating or realigning roads away from unstable road fills and improving stream crossings and shade can reduce landslides and debris flows. Sites at greatest risk have oversteepened fills on steep slopes and fills perched over headwalls, with sparsely vegetated slope below them. Road relocation addresses more fully mass wasting risks associated with fills, culvert plugging and failure, and channel diversion than would road reconstruction. Road relocation or realignment would move portions of a road system from unstable areas by constructing a new road or rerouting existing roads. The older roadbed would likely be obliterated to reduce the risk of further failure and planted with native vegetation. Road reconstruction may reduce the risk of landslides, but would retain fills, culverts, and ditchlines. Thus, the potential for culverts and ditchlines to plug and divert water to cause washouts or mass wasting would still remain.

Storm damage repairs can improve hillslope drainage by installing more relief pipes or enlarging existing ones to handle larger storm events. How much drainage is improved depends on how many pipes are being proposed, the roads' position on the hillslope, how many roads are being treated, and what the road and harvest history has been in that particular subwatershed. Repairs that are successfully implemented can reduce ditchline extension and channel erosion resulting from too much water delivery. Repairs can also re-establish natural flow paths to streams and wetlands improving water storage and baseflows downstream.

Recovery of riparian vegetation depends how much of the road is in a riparian reserve, the proposed treatment, and how much work is planned. Projects that relocate valley bottom roads or roads that have multiple stream crossings, in the long term, would have a positive effect on riparian vegetation and connectivity. Trees and other riparian vegetation would re-colonize a ripped roadbed and in time help to close the road corridor.

2.1.2.1.3 Road Decommissioning, Obliteration, stabilization and inactivation. Riparian vegetation can be disturbed when culverts are removed, over-steepened fills are pulled back, and when roads are inactivated or permanently removed. When culverts are removed, riparian shrubs and trees may be cut and excavated to access each site and restore proper channel dimensions. This type of activity is likely to have no or only localized effects on stream shade and water temperature because of the small amount of vegetation being removed. Culvert removal could only affect water temperature if numerous culverts were removed in the same drainage, or when completed in conjunction with other vegetation-altering activities. NOAA Fisheries expects that removal or closure of valley bottom roads would have a positive effect on stream temperature in the long term. Trees and other riparian vegetation would re-colonize a decommissioned or obliterated roadbed and, in time, help re-shade the stream.

If properly designed and maintained, road decommissioning and obliteration can decrease sediment loading to streams and, over time, improve habitat conditions. However, before such improvements can be realized, short-term sediment and turbidity increases may occur from culvert removal, fill removal, and re-contouring of roads, depending on the size and nature of the action. Sedimentation can also occur for several years after the project is completed until a stream channel or hillslope adjusts to its original form and vegetation has been established. Sediment from design failures could also occur, especially in steep, unstable terrain or in climates that can produce rapid surface and subsurface flows (*e.g.*, from rain-on-snow events). Depending on how much sediment reaches a stream, short-term effects to listed fish could include increased gill irritation resulting in reduced respiration efficiency and reduced feeding efficacy due to poor visibility. However, effects are unlikely to be prolonged, result in substantial changes in substrate composition, or decrease growth or survival of freshwater life stages of listed fish species. The proposed PDCs (*e.g.*, timing of work, requirements for disposal of fill material, use of sediment trapping material) will help to limit sediment effects. If road decommissioning and obliteration projects are successfully implemented, substrate quality should actually improve over time, because chronic sediment sources would be corrected.

Activities that occur in or near streams can disturb or harm adult and juvenile fish. Culvert upgrades, removals, and valley bottom road removals may take several hours or days to complete. NOAA Fisheries expects that listed fish would move into habitats above or below work sites to avoid equipment in or near stream channels, and then quickly reoccupy the vacated habitats as flows are reestablished within the completed channels.

2.1.2.1.4 Rock Quarry Operations. Rock quarry activities can generate sediment when pits are excavated and when the material is crushed, piled, and hauled. Quarries that are in riparian areas can transport sediment through over-steepened fills, compacted surfaces and excavated slopes. Quarries outside riparian areas may transport sediment via roads, but only if the quarry road ditchline connects to a stream or the haul road is close to and parallel with a stream. NOAA Fisheries expects that PDCs which require excavation and hauling during the dry season for quarries located in riparian areas will minimize sediment transport. Turbidity from rock quarries during spring snowmelt could last from a few hours, to days, depending on use. Turbidity resulting from storm events would likely not be discernible from other sediment sources.

Rock quarries generally have compacted soils and are more prone to overland flow during intense rain or rapid snow melt. Peak flows could be increased by accelerated runoff from quarries if the overland flow reaches ditchlines, occurs near streams without vegetated buffers, or contributes to increased groundwater recharge.

Riparian vegetation can be affected by sidecasting crushed rock, removal of hazard trees, rock excavation, and vehicle use within the quarry. According to the BA, most rock quarries are not located near streams. However, a few quarries are likely to have small intermittent streams near or within the site. Continued use of these quarries prevents the establishment or recovery of riparian vegetation along these channels. Quarries along larger streams generally have a road or tree buffer between the quarry and the stream.

2.1.2.1.5 Road Prism Salvage, Tree Clearing and Hazard tree Removal. The limited nature of activities included in this programmatic category and PDCs will prevent most negative effects to

wood recruitment. First, activities only allow for the sale and removal trees that fall in the road's prism when outside of riparian reserves. Second, salvage will not occur within riparian areas of a stream channel, unless wood and riparian goals are met. Finally, pieces (greater than 8 inches at large end) not salvaged are to be reserved for large wood placement when funds become available. While riparian roads will still be in place and inhibit wood recruitment, the above criteria will minimize its removal.

The greatest effect to riparian forests and streams likely occurred when the road was constructed and from subsequent maintenance. The programmatic only allows that portion of a fallen tree in the road prism when outside of riparian reserves to be removed. Because a fallen tree cannot be taken outside the road prism, disturbance to riparian vegetation should be limited to only that area where the tree is cut and moved. This disturbance would be far less than what occurs from annual road brushing in the same area.

2.1.2.1.6 Recreation Site, Trail, and Administrative Structure and Ski Resort Maintenance and Associated Public Use. Clearing brush and felling hazard trees in riparian areas could increase solar radiation to streams. However, the proposed PDCs require that brushing not occur within 10 feet of intermittent and 20 feet of perennial streams. This is expected to protect overhanging vegetation that is currently providing shade close to streams. However, taller alders or hazard trees providing shade outside this buffer could be cut as needed. Past experience with trail and recreation site maintenance shows that only a few hazard trees are cut per year at any one site or trail. Therefore, effects to water temperature should be minimal since removal of hazard trees would be localized and not enough trees would be removed to significantly reduce stream shade.

Aquatic habitats could potentially be affected from trail maintenance through sediment delivery associated with removal of material from small landslides and trail tread repair. Trail tread maintenance may cause localized, short-term sediment yield increases when rocks or roots are removed. Removal of landslide material may also contribute sediment. The potential for sediment input to streams is dependent on the amount of ground disturbance at the site level, distance from the stream, slope steepness, and distance to nearest occupied habitat. NOAA Fisheries expects the proposed PDCs to minimize potential sediment effects.

Recreation site maintenance is expected to produce only minimal amounts of sediment. Grading and resurfacing of graveled roads in campgrounds may produce sediment. However, it is unlikely that sediment would affect aquatic habitats since riparian buffers would filter most sediment before reaching a stream, grading is generally conducted during dry conditions, and graded material would be kept out of drainage ditches where it can be transported to streams.

Trail and recreation site maintenance can affect instream wood by creating smaller, more mobile pieces when blowdown trees and hazard trees are cut to allow passage along streamside trails. NOAA Fisheries expects the proposed PDCs to minimize these effects to streams.

Brushing along trails and in recreation sites along streams has the potential to cut riparian vegetation needed to maintain streambank stability and stream shade, and to provide organic material to streams. The PDCs would provide buffers along streams, and brushing does not prune larger overstory trees that provide the most shade.

2.1.2.1.7 Miscellaneous Special Use Permits and Leases. Special use permits can cover a wide range of activities. For example, permits are issued for renting government-owned cabins, lookouts, and barns; stockpile sites for sand and gravel; camping and picnicking sites used by permittees; disposal sites and transfer stations for garbage, trash, and other nonhazardous solid waste; group events; facilities for radio, cell phone, and microwave communication sites; water gauging stations; and outfitter/guide activities, including surface water recreating; and recreational residences (summer homes). Because only NLAA actions in this program category are covered by this BA, effects of those actions on listed fish are expected to be insignificant and discountable. Likely to Adversely Affect actions would be addressed in a separate consultation and are not covered by this Opinion.

Recreational residences, most of which were built many years ago, are often located adjacent to streams and lakes. While the structure (home) is typically privately owned, the land under and around the structure is government owned. Homeowners are not allowed to remove vegetation unless permitted by the government. Trees or snags near a residence may become hazardous to the structure and its occupants and for safety must be felled. Falling of hazard trees may open the canopy along the stream and subject the stream to increased solar radiation. Typically, the number of trees that need felling at any particular site is small (often only 1-2). Due to the scattered location of summer homes, and because tree felling only occurs sporadically, the effect of this activity will often be negligible.

Stream turbidity and sediment could occur at stockpile sites when sand and gravel is loaded, unloaded, and hauled or from the construction and enlargement of pads for communication sites. Most permitted stockpile sites are in existing rock quarries. The amount of sediment that reaches a stream depends on the location of the quarry and the amount of activity that occurs within it. Quarries that are in riparian areas have a greater chance of transporting sediment than those outside of riparian areas connected by ditchlines.

Sediment from communication sites has a low probability of reaching a stream. Almost every site is on top of a ridge or mountain to enhance the communication signal, thus very few sites are in riparian areas.

Use of designated launch and take out sites by surface water recreation outfitters and guides should minimize direct and indirect sediment effects. Localized bank erosion may occur from permitted activities in riparian areas, such as a raft put in/take out locations. To meet the programmatic, effects need to be small enough that they do not result in stream bank erosion, significant riparian damage or changes to channel substrate.

Chemical contamination can also result from septic systems associated with cabins, solid waste sites, and recreational and group use of other sites. All permits require proper disposal of human waste and waste water by either carrying it out of remote sites, disposing it or burying it away from water sources, or directing visitors to use existing facilities. Solid waste transfer sites do not allow hazardous material and require that waste be placed in containers that are provided. If these rules are followed, contamination should be limited to leaking toilets or septic systems. Leaking toilets and septic systems pose a high risk to water quality and would not be covered programmatically.

Maintenance around gauging sites may require the movement of wood near intake pipes or the gage plate. To be covered by the programmatic consultation, impacts to wood must be negligible. This suggests that wood must either be moved downstream without cutting or if cut, cutting only a few smaller pieces so it can be moved. Any greater effects would be outside the programmatic consultation. Removal of hazard trees near recreational residences located along streams may affect potential wood recruitment at the site. This activity typically occurs sporadically in isolated locations and should normally have only minimal effects on overall wood levels in streams.

Streamside vegetation may be brushed to maintain access to some gauging stations. Brushing is mostly needed to access the stilling well and gage plate, but trails can be brushed as well. Brushing generally involves handclipping vegetation in localized areas, never removing enough vegetation to reduce streamside shading or bank stability. Riparian vegetation can also be disturbed as a result of recreation activities associated with permits. Vegetation disturbance is expected to be limited to trampled grasses, forbs, and shrubs. This is not expected to have a significant impact upon riparian vegetation conditions.

Water related recreation can result in both the disturbance of adult and juvenile fish and the direct mortality of eggs and pre-emergent fry. Most swimming and wading (non-fishing) takes place in areas where there are sand or gravel beaches, adjacent to a large pool. Disturbance of juveniles is most common along shorelines, where fry congregate in the shallows. Disturbance of older age class juveniles and adults, including over-summering adult chinook salmon and steelhead, can occur when rafting or kayaking travels over holding pools. The use of the pools by adult fish is known to occur but the importance of an individual pool during a given year is unknown.

Special use permits are also issued for renting government-owned cabins, lookouts, and barns; stockpile sites for sand and gravel; camping and picnicking sites; disposal sites and transfer stations for garbage, trash, and other non-hazardous solid waste; group events; facilities for radio, cell phone, and microwave communication sites; and water flow gauging stations. Other than permits for recreating on surface waters, only activities that are not anticipated to adversely affect habitat indicators (*e.g.*, will not contribute sediment or reduce large woody material in stream channels), including interrelated and interdependent effects, are covered by this Opinion. NOAA Fisheries agrees that these activities, exclusive of surface water recreation, completed as described (including adherence to PDCs) will have insignificant and discountable effects on listed Pacific salmon or their habitat.

2.1.2.1.8 Telephone Line and Power Line Renewal Special Use Permits/Right-of-way Grants.

Power and telephone lines require vegetation to be cleared from the center of the line to a set distance (usually 10 to 50 feet either side of the line). Telephone lines and smaller spur powerlines along roads may require vegetation removal only along one side of the line. Vegetation is cleared on a set rotation that is usually once every 5 to 10 years. Vegetation can be controlled by removing limbs, hazard trees, and brush. The clearing of brush and trees in riparian areas may increase solar radiation to streams. The proposed PDCs require that brush removal not occur within 10 feet of intermittent or ephemeral streams or within 20 feet of perennial streams. The PDC will protect overhanging vegetation that is currently providing shade close to streams. However, trees providing shade within and outside this buffer would be

limbed or topped as needed. NOAA Fisheries expects that, because of the limited number of stream crossings by these facilities and the infrequent maintenance (commonly once every 5-10 years), effects on stream shade and water temperature would be minimal.

The repair and maintenance of underground cables may require excavation and soil disturbance. Most maintenance would be completed in the summer and appropriate Best Management Practices (BMP) will be used. Therefore, excavation of a line in a road's fill slope would likely cause only localized sediment delivery to streams that would not substantially increase turbidity. Excavation in a ditchline that crosses several streams may increase sedimentation and turbidity. Excavated trenches are usually small (approximately 6-8 inches wide and 10-30 feet deep), resulting in localized bank erosion. Excavation is not required over large streams because cables are attached to bridges, buried in the roadbed, or bored under the stream. Rainfall may mobilize sediment from disturbed soils if vegetation has not been restored at the site. Turbidity increases could last from a few hours to days, depending on the soil disturbance at the site. NOAA Fisheries expects that use of PDCs will minimize impacts on listed fish or their habitat.

The use of heavy equipment and chainsaws near streams can present a hazard from leaks and spills of fuel or lubricant. However, the proposed PDC of refueling at least 150 feet from a stream and having spill equipment on hand should reduce the likelihood of fish being exposed to such contaminants, even if there is a spill.

2.1.2.1.9 Discretionary Road Use Permits (non-timber related). Road use permits are issued for the commercial use of FS roads by non-Federal public or private entities. Right-of-Way Permits/Easements/Grants are given to provide for commercial and non-commercial use of Federal roads by private entities. Most often these permits are issued to provide permanent access to utilities, communications facilities, and private residences. Right-of-way permits or easements to gain access for timber harvest activities on non-Federal lands are not included in this programmatic.

Two categories of effects occur by issuing road use permits or granting of Rights-of-Way: (1) effects that occur on Federal land caused by the use and maintenance of the road, and (2) interrelated and interdependent effects occurring on private lands that are caused by private land activities enabled by the issuance of the road use permit or Right-of-Way grant. These effects to the matrix indicators are discussed separately, below.

Use and maintenance of Federal roads to reach non-Federal land should have only minor effects on water temperature of nearby streams on Federal land. Of the various activities involved (primarily dust abatement, brushing, rocking, culvert and ditch maintenance, and grading), only cutting of brush along roads in riparian areas appears to have much potential to affect temperature directly – by reducing streamside vegetation that shades the water. Nevertheless, PDCs would minimize any brushing of roads in riparian areas in order to maintain aquatic and riparian habitats.

Approval of access across Federal lands for construction and maintenance of roads, utilities, communication facilities, and similar infrastructure usually includes the right to cut trees and other vegetation along existing roads. Where this occurs near streams on Federal land, it could directly raise water temperature by reducing shade provided by riparian vegetation. The access

provided on Federal land also usually includes rights to construct other temporary or permanent access routes, which may also result in loss of some vegetation shading streams, either directly from cutting or indirectly from various ground-disturbing activities. Nevertheless, PDCs would minimize such activities in riparian areas in order to maintain aquatic and riparian habitats.

Sediment and turbidity are the habitat elements most likely to be affected in streams on Federal lands by issuance of road use permits or granting of Rights-of-Way. Ground disturbance within riparian areas of stream channels can result in sediment being transmitted into the streams. Activities such as rock and culvert and ditch maintenance, which are intended to prevent erosion in the long term, often produce some short-term adverse sediment delivery.

Issuance of road use permits and granting of Rights-of-Way would lead to commercial and private use of Federal roads and create the potential for fuel and chemical spills on Federal lands. The potential for fish impacts is minimal due to the unlikely occurrence of a spill.

Forest Service guidelines require that all new culverts allow for migration of adult and juvenile fish upstream and downstream during conditions when fish movement normally occurs. In some cases, replacement of barrier culverts may be required under conditions of the permit.

Effects from road use due to the issuance of road use permits or Right-of-Way grants on substrate composition can be expected, and are directly related to the magnitude of any increases in stream sedimentation discussed above. The more sediment transported to the stream, the more likely it is that these fine particles will settle into spawning gravel, compact the substrate, and otherwise contribute to lower survival and especially lower early reproductive success of salmonid fishes. Growth rates of fish can also be adversely affected, since increased deposition of fine material and filling in of interstitial spaces can reduce production of many aquatic insects and other invertebrates that serve as food.

Like effects on temperature, effects of road use permits and Right-of-Way grants on recruitment of large wood into stream channels should be negligible in most cases, and largely confined to those from brushing along roads or cutting of trees while constructing additional access in riparian areas. These activities can potentially remove a few small conifer trees that could have eventually matured and fallen into a stream, thereby dissipating stream energy and providing pools, cover, and other aspects of fish habitat. Reductions in recruitment of large wood into channels and its subsequent movement downstream will result in loss of fish habitat both locally and downstream. See Temperature section above.

Effects to peak and base flows could possibly occur due to the granting of Right-of-Ways where, in transient snow zones, any cutting of trees and subsequent maintenance of the area without a considerable forest canopy could increase water yield. Such relatively open areas allow a greater amount of snow to accumulate and do not break up winds like a diverse, mature forest with large trees. It is then more likely that rain-on-snow events will increase the risk of heavy winter runoff and freshets with peak stream flows that can flush fish, nutrients, and food organisms downstream if there are no good sheltering areas with deep pools, and off-channel and backwater areas. If the project involves much use of heavy equipment, compaction of soil could also contribute to increased runoff, although PDCs and limits on this programmatic assure that most

Rights-of-Way would not be extensive enough to produce measurable effects on water yield. Effects to peak and base flows are not expected due to the issuance of road use permits.

Upgrading, maintenance, and use of roads on Federal lands could prolong the life of any road that would otherwise be a candidate for decommissioning. This would prolong any negative impacts the road is having on hydrologic recovery (e.g., ditches artificially extending the natural stream network), and would constitute an adverse effect on fish if the road would otherwise have been decommissioned and its effects on the drainage network reduced. Also, construction of new access due to Right-of-Way grants could create routes that have deleterious effects similar to existing roads, by interrupting and/or extending the natural drainage network.

Issuing right-of-way permits allows construction of new temporary or permanent access routes on Federal lands may result in increased road density at the subwatershed scale. Effects from road construction would be commensurate to the amount and location of road built. However the PDCs, coupled with Watershed Analysis recommendations and ACS Standards and Guidelines would help to minimize the construction in riparian areas.

Construction and maintenance of access near streams due to the granting of Right-of-Ways could result in temporary to long-term impacts on riparian areas, particularly through suppression of both growth and succession of natural vegetation. However, this programmatic only covers smaller permits that would not impact enough area to produce major cumulative impacts on streams and fish habitat. Minor damage to structure and productivity of riparian areas from compaction of streamside soils could also be possible. The PDCs would clearly minimize the extent of any such actions. Effects to riparian reserves due to the issuance of road use permits are not expected.

2.1.2.1.10 Aquatic and Riparian Habitat Improvement Projects. Riparian vegetation can be disturbed when channels adjust alignment, access roads are constructed, trees are thinned to improve riparian stand conditions, trees are pulled over or cut to provide instream structures, or trees are removed when side channels are excavated. As stated previously reductions in riparian vegetation can reduce channel shading and increase water temperatures. The proposed PDCs (e.g., minimize stream entry points, do not fall conifers in riparian areas unless stand is fully stocked) should prevent adverse effects to water temperature.

Instream restoration structures (e.g., placement of large wood and/or boulders in a stream) can reduce width/depth ratios and increase pool frequency which can result in water temperature reductions.

Construction of restoration access roads, channel excavation, some types of structure placement, culvert replacement, and hauling materials over native surface roads could increase sediment delivery to stream channels. Stream sediment loads may also increase for several years after the project is completed until a stream channel adjusts to its original form and vegetation has been established. NOAA Fisheries expects the proposed PDCs will limit sediment generation and design failures.

Chemical contamination of the stream channel could occur from equipment leaks (diesel fuel, oil, hydraulic fluids, and antifreezes) or refueling spills during project implementation. However, the proposed PDCs should significantly reduce these hazards.

Existing culverts may be removed and replaced with new structures (e.g., clear-span bridges), or removed without replacement in order to restore passage at locations that were previously barriers to adult and juvenile fish movements.

Placement of large wood can create more complex fish habitat, benefitting juvenile Pacific salmon rearing. The stability or longevity of this wood within streams is strongly linked to its size, orientation to flow within the stream, channel dimensions, watershed area upstream from the structure, and the percentage of the log that is in the active stream channel. The PDCs require the use of whole trees or tree pieces that are of sufficient size to mimic natural accumulations in a given stream.

The goal of placing salmon carcasses in streams is to benefit a wide geographic area, and to restore stream nutrient levels to historical levels. Nutrients that would be added from salmon carcasses include carbon, nitrogen, and phosphorus. NOAA Fisheries expects that distribution of salmon carcasses in selected watersheds will increase stream nutrient levels in these areas over time.

Some projects that artificially stabilize a streambank may be necessary. However, in most situations, leaving the streambank alone or riparian planting, rootwad revetments, or placement of logs and boulders diagonal to stream flow are better alternatives. Treatments that harden stream banks and leave them in an unnatural condition can cause channel erosion downstream and alter natural channel processes. Instream structures can cause stream bank erosion by creating velocity vortices at high flows. The proposed PDCs should ensure these effects are minimized. Potential benefits of correctly installed instream structures include increased habitat complexity, reduced width/depth ratio, and increased pool habitat.

Potential benefits resulting from culvert removal/replacement or cleaning of fish ladders include better access for fish and other aquatic organisms and better routing of flood flows and associated bedload. Sometimes, the correction of culvert barriers can allow introduced species greater access to tributary habitats. This can increase competition, hybridization, and the displacement of native salmonids by nonnative or hatchery fish. Projects with these potential effects should be analyzed further and may be outside the proposed programmatic activities considered in this consultation.

2.1.2.1.11 Fisheries, Hydrology, Wildlife, Botany, and Cultural Programs. Activities associated with some types of surveys and monitoring can disturb or stress adult/juvenile fish or crush eggs/fry buried in the gravel. The proposed PDCs (redd identification, proper training, and coordination) should reduce these risks. Disturbing adult fish while spawning can reduce reproductive success through either prevention of redd (nest) establishment, displacement of adults to less suitable habitats, creation of poorly constructed redds, or expenditures of excess energy resulting in premature death of spawning adults (Dufour 1995).

2.1.2.1.12 Non-Commercial Vegetation Treatments. Thinning in riparian areas has the potential to increase solar radiation to streams, increasing water temperature (Beschta *et al.* 1987). However, the proposed PDCs require that an untreated or modified treatment area within riparian areas be maintained (10 feet on each side of ephemeral streams) and an untreated buffer of 20 feet on each side of perennial streams to prevent any potential adverse effects to stream channels or water quality conditions. Thinning in riparian areas involves cutting of small trees (2 to 4 inches diameter-at-breast-height) which are left on site. Because trees cut during riparian thinning are less than 10 feet tall, it is unlikely that stream shade would be affected. Larger trees would not be cut, because they are not the target of riparian thinning. Riparian thinning would also have negligible effects on sediment because very little ground disturbance takes place when these small trees are cut.

Thinning in riparian areas would have minimal effect on the amount of woody material in streams. The proposed PDCs are designed to provide an untreated area that will maintain enough recruitment of woody material to sustain stream channel and habitat features.

Noxious weeds would be treated using a combination of mechanical control such as hand-pulling and clipping, and biological control through parasites and pathogens. The use of herbicides is not covered under this programmatic Opinion.

Mechanical treatments could result in localized soil disturbance as plants are pulled. Increased sediment to streams along road cuts and fills and within riparian areas is possible, but the increase would likely be undetectable, since only a limited amount of vegetation would be removed in a treated area. Not all sediment from pulling weeds along roads would reach a stream because relief culverts intercept ditch flow and drain it onto the forest floor away from streams, and because hand pulling is very labor intensive and costly, so only a few acres per year within any watershed could be treated using this technique.

Since the proposed PDCs do not allow intentional prescribed burning within riparian areas, any effects to aquatic resources would likely result from hand-construction of fire lines, lost upland vegetation or exposure of hydrophobic soils. Hand-constructed fire lines can create erosion from the excavation. However, hand-constructed fire lines are not constructed for every burn. They are generally needed only when weather or burn conditions dictate the protection of a particular resource, like riparian reserves. When needed, hand-constructed fire lines are generally not constructed in a riparian area, but parallel to them. This technique protects stream bank vegetation and leaves a vegetative buffer in place, which filters sediment. If hand-constructed fire lines are used on steeper ground, lines would be water barred to reduce erosion.

Exposed soil can be present following a prescribed burn, and would be prone to erosion until the regrowth of grass and other vegetation. Conducting burns during wetter conditions will reduce the risk of producing hydrophobic soils because the intensity of the burn should be low. Given the small number of acres that could be burned each year and the use of riparian buffers, it is unlikely that enough sediment or nutrients would be generated to adversely affect aquatic resources.

In a transient snow zone, prescribed fires that reduce canopy closure and increase openings will cause more rapid accumulation of snow and more rapid melting of snow. This is primarily due

to reduced interception of precipitation by the tree canopy. This can increase sediment generation and peak stream flows that can damage fish habitat. NOAA Fisheries understands prescribed burning in the context of the Non-Commercial Vegetation Treatment category is intended to reduce understory shrubs in small parcels of land outside of riparian areas, and will not appreciably reduce canopy closure. As burning will not substantially increase forest openings, peak flow alteration is likely to be insignificant or discountable. The exclusion of riparian areas from prescribed burning areas is likely to minimize sediment delivery to stream channels.

Although the proposed PDCs are designed to protect riparian areas, fire can escape control lines and burn riparian vegetation. A fire burned under the right conditions with good control measures will likely include only minor fire encroachment into riparian areas. In contrast, fires that escape control lines may burn through riparian areas consuming some ground fuels and riparian trees. However, due to the small scale of most escaped fires, it is unlikely that fire in riparian areas would adversely affect listed fishes or their habitat.

2.1.2.1.13 Pump Chance/Helipond Maintenance and Use. Streamside trees and shrubs may be cut to provide better access to water drafting sites and for hazard tree removal at those sites. Most of this work would include brushing previously cleared areas with few, if any, larger trees removed. Riparian vegetation cleared would include willows, alders, big leaf and vine maple; and, around ponds, cattails. Clearing of any riparian vegetation may prevent establishment of a full complement of riparian cover within riparian zones. Removal of riparian vegetation would be minimal along roadside pullouts used for water drafting, but may be more frequent along valley bottom spur roads. Effects to water temperature would be negligible because of the removal of vegetation that shades streams would be localized.

The greatest potential for increasing turbidity from the activities is from the deepening of pump chance sites. Sites that require extensive excavation with abundant fine sediment could create turbidity plumes hundreds of feet downstream, while in other situations turbidity plumes may only occur within a few feet of the site. The proposed PDC's require that sediment control be used if conditions warrant their use. Activity will also be limited to the low flow period. Therefore, turbidity increases are likely to be short term, lasting no more than a few minutes to hours.

The use of heavy equipment in streams or along stream banks and refueling of pumps can present a hazard if fuel or oil leaks into streams. However, the proposed PDC of refueling at least 150 feet from a stream and having spill equipment on hand should reduce these hazards.

In smaller streams that lack deeper pools, small dams may be built to pond water to facilitate pumping directly into a truck or a temporary basin along a road. Use of temporary dams is likely to be infrequent, however, because they are time consuming to construct and do not always provide enough flow to meet demands. Dams can be in place for several hours or days depending on the water needed. The construction of dams that block fish passage is not covered under this consultation.

Recruitment of woody material would be reduced when hazard trees are cut along spur roads and when in-channel debris is moved to excavate a pool. Overall effects to wood recruitment should

be minimal because few hazard trees would be cut at each site, sites comprise a small portion of the overall riparian area, and cut trees will be left on site.

Construction of pools in-channel can mobilize sediment. Pool excavation generally occurs in small perennial streams, but can sometimes occur in larger fish-bearing stream. Generally, sites are not excavated more than once or twice every 5 years, but some sites in streams with heavy bedloads could be excavated yearly. The proposed PDCs (e.g., timing of in-water work, pump screen criteria, maintaining at least half of existing stream flow downstream from the site) should minimize the effects of these actions on listed fish.

2.1.2.1.14 Special Forest Products and Ornamental Rock Collecting (mineral sales).

Turbidity caused by ornamental rock collection should be minimal. Most ornamental rocks are collected from either existing quarries, rock outcrops in the forest or in streams. The amount of rock collected in outcrops or streams are generally small; a few cubic yards per permit. So large excavations are not expected. The PDCs do not allow rock collection in wetted channels. Rock collection is allowed only in high flow channel or terraces. Thus there should be no direct movement of sediment to streams.

Ornamental rock collection is not expected to measurably affect stream bank stability. To be covered under this programmatic consultation, only small amounts of rock could be taken outside the wetted stream channel. Therefore, rock collection may lead to localized bank erosion when rocks are taken from high flow channels, but should not cause erosion over a long stretch of stream.

The effects from the collection of special forest products vary by what is collected, and the extent and location of the collection. For example, the collection of mushrooms, greenery (boughs, leaves, fern fronds, vine maple, salal, huckleberry), ferns, cascara peelings, grasses, burls, and cones generally creates minimal soil or vegetative disturbance. In addition, PDCs and additional guidelines should protect Riparian Reserves. Therefore, their collection should have little effect to streams or riparian vegetation.

The collection of firewood and Christmas trees, on the other hand, can create localized areas of disturbance when trees or downed wood are cut and moved. However, to be included in the programmatic BO, all PDCs and effects threshold must be met. These requirements, in addition to those in the Northwest Forest Plan, would adequately protect streams from the removal of downed wood and recruitment trees.

2.1.2.1.15 Spirit Lake Tunnel. Annual inspections and maintenance of Spirit Lake Tunnel, located on Mt. St. Helens National Volcanic Monument, are performed to ensure safe water levels in the Spirit Lake basin and prevent saturation and failure of unstable materials blocking the original outlet channel. Spirit Lake Tunnel is an 8,465 foot long gated tunnel for FS to provide safe drainage from Spirit Lake through a debris plug to South Coldwater Creek. Annual and periodic inspections determine the conditions of tunnel and intake structure and to determine maintenance actions required.

Maintenance work requires dewatering of the tunnel for extended periods. Past maintenance work has required closure periods of one week to five months depending on type and scope of

work. Equipment access to the downstream tunnel portal may require entry to South Coldwater Creek below the tunnel. In the event of an emergency that requires emergency intervention to protect the earthen dam (e.g., from catastrophic failure), emergency consultation procedures (i.e., notifying NOAA Fisheries of FS actions) will be used.

Activities which typically do not result in ground disturbance with sediment delivery mechanisms to stream channels would not decrease stream shade, LWM supply or bank stability. Annual inspections and maintenance would have a negligible risk of incidental take caused by juvenile stranding.

The lower one-quarter mile of Coldwater Creek, below an impassible falls, is accessible to listed winter steelhead. Winter steelhead do not use Coldwater Creek for spawning (per.comm. Dan Rawding and John Weinheimer, WDFW). The accessible portion of Coldwater Creek may be used for some short term rearing by juvenile winter steelhead. However, during August few, if any, have been observed in this area (per. comm. Dan Rawding and John Weinheimer, WDFW). The planned ramping rate changes, with maximum reduction in Coldwater Creek flow by 60%, will minimize any potential to strand juvenile winter steelhead in the lower creek, if any are present.

2.1.2.1.16 Aggregated Effects of Proposed Action. The Level 1 team concluded that some effects may not have been considered due to unique watershed conditions or from cumulative (aggregated) effects of multiple activities within each watershed. Twenty-seven fifth field watersheds were selected between the three provinces using the following criteria: condition category (properly functioning, at risk, or not properly functioning) (NMFS 1996a), the proportion of Federal lands in each watershed, high numbers of programmatic activities, and adequate baseline information. Of these 27 selected watersheds, two are rated as properly functioning, 14 are functioning at risk, and 11 are not properly functioning. The Level 1 Team considers the 13 watersheds to be a biologically conservative representation of those not described in detail because they represent a range of baseline conditions and have high levels of proposed activity.

Fishery biologists and Level 1 Team members from each action agency administrative unit reviewed the anticipated effects of the proposed activities within each programmatic category in relation to the environmental baseline, unique watershed conditions, and their spatial and temporal distribution. The reviewers determined over a two-year series of meetings discussing the proposed action that individually and cumulatively the actions likely would cause effects that were too small in scale, duration, and intensity to cause a "shift" (e.g., from properly functioning to functioning at risk) in any habitat indicators (NOAA Fisheries 1996a) at the fifth field scale.

NOAA Fisheries also considered the following in analyzing the potential for aggregated watershed effects:

1. Anticipated activity levels by watershed (described in Appendix A, Table 6).
2. The nature, magnitude, intensity, duration, frequency, timing, distribution, and probability of disturbance to aquatic, riparian and watershed habitat functions and conditions from the proposed activities.

3. Specific PDCs, developed during a lengthy cooperative process with NOAA Fisheries, that avoid or minimize adverse effects on aquatic, riparian and watershed functions and conditions important to the listed species.

Based on the above information, NOAA Fisheries determined that any aggregated watershed effects from the proposed activities are likely to be predictable, minor, and short-lived, and are unlikely to prevent, or appreciably delay, attainment of aquatic, riparian and watershed functions and conditions that meet the biological requirements of the listed species for survival and recovery.

2.1.2.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." This is step 4 in NOAA Fisheries analysis process.

Because the land is primarily in Federal ownership, NOAA Fisheries is not aware of any specific future non-Federal activities within the action area that would cause additional impacts to listed species than presently occurs. Non-federally owned lands adjacent are outside of the action area, unless accessed via FS roads; activities on these parcels and/or any private inholdings within the action area are subject to FS special use permits, therefore would fall under section 7 review, and those activities cannot be calculated as cumulative effects.

2.1.2.3 Concurrence with Not Likely to Adversely Affect Activities

Based on information provided by the FS, NOAA Fisheries concurs with the action agencies' determination that those activities described in Table 2 as NLAA and listed in Appendix A may affect, but are not likely to adversely affect listed Pacific salmon for the following reasons:

(1) Each proposed activity has project design features (Appendix A, Table 2) that will ensure that adverse effects, if any, to aquatic and riparian habitats will be negligible; and (2) all relevant aquatic habitat indicators for listed anadromous salmonids will be maintained or improved. Thus, effects to the species are likely to be insignificant and discountable.

2.1.3 Conclusion

The final step in NOAA Fisheries' approach to determine jeopardy is to determine whether the proposed action(s) is likely to appreciably reduce the likelihood of species survival or recovery in the wild. In reaching its conclusion, NOAA Fisheries used the best scientific and commercial data available, including the BA and supporting documentation, incorporated by reference. NOAA Fisheries considered the status of listed and candidate Pacific salmon, environmental baseline conditions, the direct and indirect effects of the proposed actions individually and in aggregation, and cumulative effects anticipated in the action area.

Based on the above information, NOAA Fisheries determined that the proposed 15 programmatic categories of action could cause predictable, minor, and short-lived adverse effects to listed and candidate species, but are unlikely to prevent, or appreciably delay,

attainment of habitat functions and conditions that meet the biological requirements of the listed and candidate species for survival and recovery. The proposed action therefore is unlikely to reduce pre-spawning survival or egg-to-smolt survival to levels that would appreciably reduce the likelihood of survival and recovery of LCR, MCR steelhead, CR chum salmon, LCR and PS chinook and LCSW coho salmon.

2.1.4 Reinitiation of Consultation

This Opinion expires on January 1, 2009. To avoid a lapse in coverage, consultation must be reinitiated with sufficient time to complete consultation prior to that date.

It must also be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

Additionally, if the FS fails to provide the specified annual monitoring information by the required date (see *infra* section 2.2.3, Term and Condition No. 3), NOAA Fisheries will consider that a modification of the action that causes an effect on listed species not previously considered and causes the incidental take statement of the Opinion to expire.

To reinitiate consultation, the FS must contact the Habitat Conservation Division (Washington State Habitat Office) of NOAA Fisheries at 510 Desmond Drive S.E., Suite 103, Lacey, Washington 985403. The FS should reference NOAA Fisheries No. 2003/01309.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as acts or failures to act that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. The ESA at 7(o)(2) removes the take prohibition when take is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of the section 7(b)(4) incidental take statement.

An incidental take statement specifies the effect of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize adverse effects and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of LCR, MCR steelhead, CR chum, LCR and PS chinook and LCSW coho salmon.

Effects of actions such as these are largely unquantifiable because take is in the form of harm -- habitat modification that alters normal patterns of behavior to the point of injury or death. Quantifying take associated with habitat modification is problematic because of the complexity of cause and effect relationships in anadromous species which have high variability in numbers and presence over time. Therefore, even though NOAA Fisheries expects some low level of incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species due to the highly variable numbers of fish that may be present at any given time. Based on the information in the BA, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of actions covered by this Opinion. In instances such as these, NOAA Fisheries designates the expected level of take in terms of the extent of take anticipated. Allowed take is limited to take resulting from the actions as proposed (including project design criteria), that occurs within the action area. Take that occurs from actions that exceed the range of effects analyzed in the BA, that do not follow the PDCs, or that extends beyond the action area is not exempted by this Opinion, and requires reinitiation of consultation.

In the event that take is unquantifiable, a surrogate measure for extent of take may be used. In this case, because NOAA Fisheries believes take will be in the form of harm from temporary habitat modification, the extent of habitat that will be affected is used as the surrogate measure to the amount take. Take is expected among those fish that encounter habitat modification from the above described activities. Habitat modification will occur on up to 635 miles stream, 17,268.5 acres of riparian area modification, 5,616 miles of trails, 1,100 miles of road maintenance, 110 miles of storm damaged roads, and 150 miles of road decommissioning during the course of programmatic activities on the GPNF and CRGNSA. Habitat modification will be in the form of restoration activities in 76 of the 636 miles of stream modified, and 2,893.5 acres of the 17,268.5 acres of riparian area modifications. Extent of take is covered by the predicted actions during the 5-year period as shown in the Watershed Activity Tables, Appendix E of the BA, reflected at Appendix B Table 7 of the Opinion.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of LCR, MCR steelhead, CR chum, LCR and PS chinook, and LCSW coho salmon resulting from implementation of this Opinion.

1. Minimize incidental take from programmatic activities by following the proposed PDCs described in the BA.
2. Minimize incidental take associated with the implementation of land management activities addressed in this Opinion by avoiding and minimizing adverse effects to

aquatic and riparian habitat.

3. Complete an annual report (monitoring and reporting requirements reiterated in terms and conditions below) each year for 5 years to ensure this programmatic Opinion is meeting its objective of minimizing the likelihood of take from proposed activities and provide the report to the Washington Branch of NOAA Fisheries.

2.2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the FS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. Implementation of the terms and conditions within this Opinion will further reduce the risk of adverse effects to listed fish. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure No. 1 (PDCs), the FS shall:
 - a. Follow all PDCs for each programmatic category provided in Table 5 of the BA (repeated in this Opinion as Table 2), and/or include all PDC in contracts to be let when work is to be carried out by non-FS personnel. A project consistency form (Appendix C) will be filled out for each project carried out under this Opinion and will be filed in the project file before project work is initiated.
 - b. For all LAA projects, a project consistency form will be presented to the Level 1 team and will be signed by the NOAA Level 1 staff member prior to initiation of the project.
 - c. Delineate riparian areas in accordance with the description of riparian reserve widths provided on pages C-30 and C-31 of Northwest Forest Plan Standards and Guidelines (FS and BLM 1994).
2. To implement reasonable and prudent measure No. 2 (implementation of land management activities) the FS shall:
 - a. Confine effects of land management activities to the minimum area necessary to complete the project.
 - b. Have a fish screen installed, operated and maintained in accordance to NOAA Fisheries' fish screen criteria (NMFS 1995, 1996b) (<http://www.nwr.noaa.gov/1hydroweb/hydroweb/ferc.htm>) on any water intake structure used in waters potentially containing ESA-listed fish.
 - c. Complete work within the active channel during the WDFW preferred in-water work period, as appropriate for the project area (WDFW 2003). Exceptions must receive NOAA Fisheries' concurrence in writing prior to work being performed.
 - d. Minimize effects to ESA-listed fish during in-water work-site isolation activities.
 - i. Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during transfer procedures. The transfer of ESA-listed fish must be conducted using a net or other device that holds water during transfer, whenever necessary to prevent added stress of an out-of-water transfer.

- ii. Seined or transferred listed fish must be released as near as possible to capture sites.
- iii. Documentation of all capture and release efforts shall be filed with the associated project records within 30 days and be submitted to NOAA Fisheries with the annual report. Documentation shall include, at a minimum:
 - (1) A written description summarizing any seine, transfer, or release effort;
 - (2) the name and address of the supervisory fish biologist;
 - (3) the methods used to isolate the work area, including duration of isolation;
 - (4) the means of fish removal;
 - (5) the estimated number of fish removed by species; and
 - (6) any incidence of observed stress, abnormal behavior, injury, or mortality.
- e. Minimize work that inhibits the passage of any adult or juvenile salmonid species throughout the activity implementation period.
- f. Develop pollution and erosion control measures to minimize pollution related to programmatic activities. The measures shall contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
 - i. Erosion and sedimentation control measures shall be applied to access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
 - ii. Hazardous materials shall be identified and consideration given to minimizing their use in proximity to perennial and intermittent stream channels.
 - iii. Effective erosion control measures shall be in-place at all times during the contract. Project activities within the project vicinity shall not begin until all necessary temporary erosion controls (*e.g.*, sediment barriers) are in place. Erosion control structures shall be maintained throughout the life of the contract.
 - iv. When the erosion control features are at two-thirds capacity they shall be cleaned and maintained. They shall be inspected regularly during project implementation to ensure that they are functioning as intended, and daily during periods of precipitation. Any failure of erosion control measures shall be corrected immediately to maintain sedimentation controls.
- g. Design temporary access roads as follows:
 - i. Use existing roadways or travel paths whenever reasonable.
 - ii. Avoid riparian areas other than in association with aquatic habitat improvement projects.
 - iii. Minimize the number of stream crossings.
- h. Design and carry out work in tidal wetlands in a manner that minimizes temporary fish entrapment, water quality degradation (*e.g.*, elevated water temperature, reduced dissolved oxygen, increased turbidity), and mortality of benthic prey species.
- i. Further exclude the following actions from completion under the subject

consultation.

- i. The construction of new permanent or semi-permanent roads in or across riparian areas (including 100-year floodplain) or potentially unstable areas (as defined by slope, landform, and soil characteristics).
 - ii. The construction of new water control structures (*i.e.*, dikes, levees, tide gates, pump stations, and related features).
 - iii. The application of herbicides and other pesticides. Mechanical removal of undesired vegetation and root nodes is authorized.
3. To implement reasonable and prudent measure No. 3 (annual monitoring and reporting requirements) the FS shall:
- a. Report the number and type of projects by watershed. The report will cover the fiscal year period (October 1 - September 30) and is due the following January. It will include the location, stream miles, and acres of areas affected by the actions covered in this Opinion. It will describe affected areas in relation to their use by salmonids for spawning and rearing. The purpose of the reporting is to help estimate the extent and amount of take that may have occurred and validate assumptions regarding aggregated watershed effects. The Level 1 Team will meet at the end of January to discuss each year's information and assemble the report, including an evaluation of error rate in effects determinations, and a corollary re-evaluation of appropriate PDCs to reduce the error rate.
 - b. Send the annual report to NOAA Fisheries at:

NOAA Fisheries
Washington State Habitat Office
Reference: F/NWR/2003/01308
510 Desmond Dr. S.E. Suite 103
Lacey, Washington 98503

If the FS fails to provide the specified annual monitoring report for the previous fiscal year by February 28, NOAA Fisheries may consider that a modification of the action that causes an effect on listed species not previously considered and causes the incidental take statement of this Opinion to expire. Exceptions must receive NOAA Fisheries' agreement in writing prior to the due date.

This programmatic incidental take statement shall expire on January 1, 2009. To avoid a lapse in coverage, consultation must be reinitiated with sufficient time to complete consultation prior to that date.

3.0 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH. The EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and ``spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding any activity that may adversely affect EFH, regardless of its location.

3.2 Identification of Essential Fish Habitat

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the Exclusive Economic Zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border. Detailed descriptions and identifications of EFH for the groundfish species are found in the Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to The Pacific Coast Groundfish Management Plan (PFMC 1998a) and the NOAA Fisheries Essential Fish Habitat for West Coast Groundfish Appendix (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the Coastal Pelagic Species Fishery Management Plan (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Actions

The proposed actions are detailed above in section 1.2. For the purposes of this consultation, the action area includes Federal lands administered by the FS, or non-Federal lands affected by the proposed programmatic actions, in basins within the GPNF and the Washington portion of the CRGNSA (Figure 1) and stream reaches downstream of the administrative unit boundaries that may be affected by Federal land management activities, which are within LCR, MCR steelhead, CR chum, LCR and PS chinook salmon, and LCSW coho salmon ESUs. The majority of this area has been designated as EFH for various life stages of salmon, groundfish and coastal pelagic species (Table 6).

3.4 Effects of Proposed Action

As described in detail in section 2.1.3, the proposed activities may result in short- and long-term adverse effects to a variety of habitat features. These effects include reduced stream shade, reduced recruitment of large wood to streams, increased sedimentation of riparian and aquatic habitats, possible chemical contamination of water quality, and altered channel morphology.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for the groundfish, coastal pelagic fisheries, and Pacific salmon species listed in Table 6.

3.6 Essential Fish Habitat Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation recommendations (section 2.1.5), the reasonable and prudent measures (section 2.2), and the terms and conditions (section 2.2.3) of this Opinion are applicable to salmon, groundfish and coastal pelagic EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

Please note that the MSA (§ 305(b) and 50 CFR 600.920(j)) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse effects of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.8 Consultation Renewal

The FS must reinitiate EFH consultation with NOAA Fisheries if either action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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Appendix A: Figures

Figure 1. Geographic coverage of the Washington Programmatic consultation.

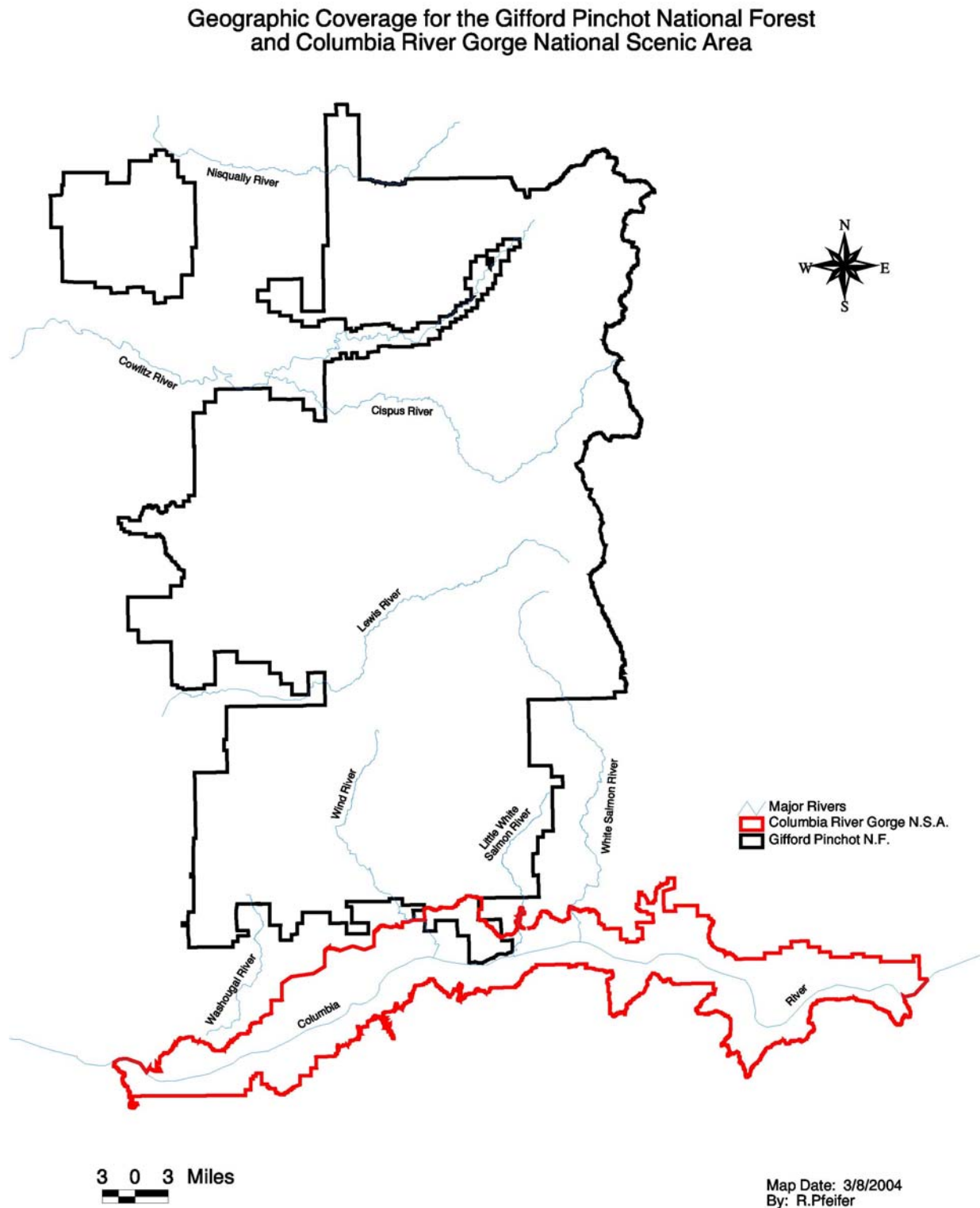


Figure 2. Watersheds selected for Further Analysis across the Southwest Washington Province (taken from page 13 of BA).



Appendix B: Tables

Table 1. FS programmatic categories of actions that are covered under this Opinion

Programmatic Activity
Road maintenance
Repair of Storm-Damaged and Vandalized Roads (including ERFO projects)*
Road decommissioning, obliteration, stabilization and inactivation
Rock quarry operations
Road prism salvage, tree clearing, and hazard tree removal*
Recreation site, trail, and administrative structure and ski resort maintenance and associated public use
Miscellaneous special use permits and leases*
Telephone line and power line renewal special use permits/right-of-way grants
Discretionary road use permits (non-timber related)
Aquatic and riparian habitat improvement projects
Fisheries hydrology, wildlife, botany, and cultural programs (including near-stream and instream surveys and environmental education)
Non-commercial vegetation treatments
Pump chance/helipond maintenance and use
Special forest products and ornamental rock collecting (mineral sales)
Spirit Lake Tunnel
* LAA projects require individual consultation and are not covered by this BO

Table 2. Program and Description, Typical Effects and Determination, Project Design Criteria, and Reporting Requirements

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>ROAD MAINTENANCE</p> <p>Road maintenance helps to maintain safety, control/prevent road erosion and sedimentation and maintain or restore hydrologic function.</p> <p>Road maintenance typically includes heavy equipment for surface maintenance (sweeping, grading, leveling), minor road realignment to improve stream functions, drainage maintenance, installation, replacement, or repair (ditch-lines, water dips, cross-drain culverts, and water bars), vegetation management (brushing, limbing, seeding, mowing, and mulching), road cut and fill repair/stabilization, surface repair/replacement (paving, repaving, chip-sealing and rocking), small slide removal (i.e., routinely, quickly, and easily handled with typical maintenance equipment),</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species. For example, maintenance actions that occur outside the RR, and are implemented during an extended dry period of the year (typically June-mid Sept), where no degradation of habitat indicators can be reasonably expected from the activity. Another example is in drainages where no listed fish species are present.</p> <p>NLAA: Actions, which would have a negligible or discountable effect or likelihood of adverse effect. For example, actions which may occur within RR, but which would be extremely unlikely to transmit sediment (including sand) or contaminants to streams. Also, minor vegetation manipulation, which would not affect stream channel shade, LWM, or bank stability, etc., especially outside of 1 SPT, may be NLAA.</p> <p>LAA: Actions, which have a more than negligible likelihood of adverse effect. For example, nearly any action with substantial transmission of sediment (including sand) and/ turbidity to stream channels would be</p>	<ol style="list-style-type: none"> 1. All applicable NFP S&G's will be followed, as well as applicable administrative unit Best Management Practices and WA state findings and recommendations (Washington State Hydraulic Codes) 2. Dispose of slide and waste material in stable, non-floodplain sites approved by a geotechnical engineer or other qualified personnel. Use stable sites beyond floodplain within Riparian Reserves (RR) only if an interdisciplinary process has identified the area as stable and not susceptible to delivery to the adjacent stream. Provide erosion control to minimize sediment delivery to streams or floodplain. 3. Minimize disturbance of existing vegetation in ditches and at stream crossings. 4. Minimize soil disturbance and displacement, but where sediment risks warrant, prevent off-site soil movement through use of filter materials (such as straw bales or silt fencing) as needed in conjunction with existing vegetation strips. 5. Implement "may affect" soil-disturbing maintenance activities during dry conditions to the greatest extent practical. 6. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services. 7. Replacement culverts should meet WDFW and NW Forest Plan standards. For fish passage culverts, refer to Regional Programmatic Biological Assessment/Biological Opinion, if applicable. 8. Refuel power equipment (or use absorbent pads for immobile equipment) and prepare concrete at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of 	<p>For each Fiscal Year, report total miles of NLAA and LAA activities on FS roads. Report number of NLAA and LAA fish passage culverts replaced, Number of NLAA and LAA culverts replaced in nonfish-bearing streams to accommodate a 1 in 100 year flood event within watersheds.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>snow-plowing, dust abatement, and maintenance, and repair of structures (guardrails, signs, relief and stream crossing culverts, bridges).</p> <p>This category also includes immediate stabilization of storm-damaged roads to prevent or minimize adverse hydrologic effects or transmission of sediment into streams and other water bodies. This category is not applicable for deferred major storm damage repairs or major storm damage repairs performed solely to maintain vehicle traffic.</p> <p>Replacement of clear-span bridges and replacement of stream-crossing culverts with clear-span bridges is covered.</p> <p>Tier to Regional Biological Assessment/Biological Opinion for Fish Passage Culverts, if available.</p> <p>Otherwise, action covered under this Biological Assessment.</p>	<p>an LAA, as would nearly any in-channel work. Vegetation manipulation within 1 SPT would often, but would not invariably, be an LAA. Overall, a programmatically covered LAA road maintenance activity should result in a long-term reduction in the risk of road-generated turbidity, sediment, and /or channel extension to stream channels from existing road segments.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA..</p>	<p>contaminants into a water body.</p> <ol style="list-style-type: none"> 9. Procurement of water used in dust abatement activities would follow the PDCs of the Pump Chance/Helipond Maintenance and Use programmatic category. 10. Where possible, take corrective actions to repair chronic problem areas of sediment delivery or slope instability that have a potential to affect listed species. 11. Culvert cleaning activities will retain all large wood in stream channel by translocating LWD/LWM typically downstream of the crossing, minimize sediment mobilization and avoid channel regrades. 12. Lead-based paint removal or removal of structures containing lead points are not covered. 13. Design replacement stream crossing structures to pass 100-year peak flood without exceeding the top of the culvert inlet. Hydraulic capacity must compensate for expected depositions in the culvert bottom (Refer to Forest Service Region 6 Biological Assessment for Culverts dated April 24, 2003, and NOAA Fisheries Biological Opinion dated September 2, 2003). 14. Limit replacement stream-crossing structures on fish-bearing streams to one of the following options: a clear-span bridge, bottomless arch culvert, embedded culvert, or no-slope culvert. Use stream simulation for designing appropriate culvert types and specs. 15. Locate any new abutments outside of the active stream channel. 16. Fresh concrete (cured less than 72 hours), concrete contaminated wastewater, welding slag and grindings, concrete saw cutting by-products, and sandblasting abrasives shall be contained and not come in contact with waterbodies or wetlands. 17. Stream-crossing structures shall not discharge stormwater runoff directly to streams. 18. Limit riprap use to scour protection of existing or replacement bridge structures and the replacement of pre-existing rock riprap. Riprap use will be minimized to the greatest extent possible and will not exceed 10 cy per site per year. Riprap will be designed in consultation with a fish biologist or Hydrologist. Outside of these uses, riprap is not authorized. 19. Streambank stabilization shall use bioengineered solutions (such as rootwads, log toes, coir logs, woody and herbaceous plantings). A 	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
		<p>minimum amount of rock may be used for infrastructure protection when no alternative (such as road realignment) exists, but bioengineered components shall be the dominant design feature.</p> <p>20. Realign road as far away from streams as possible, preferably outside riparian reserves and on stable slopes that minimize cuts and fills. Plant and seed restored riparian areas with native vegetation.</p> <p>21. Minimize the number of trees (typically 8" or more in dbh) removed for purposes of road realignment to no more than 10 whenever possible. Use the down trees for instream or riparian restoration to the full extent possible.</p> <p>22. Avoid application of dust abatement materials (lignin sulfonates, calcium chloride, magnesium chloride) during or just before wet weather and at stream crossings or other locations that could result in direct delivery to a water body (typically not within 150' of a water body or stream channel).</p>	
<p>REPAIR OF STORM-DAMAGED and VANDALIZED ROADS (INCLUDING ERFO PROJECTS)</p> <p>This category includes projects to maintain safety, open access and prevent further damage to resources resulting from storm-related and vandalism damage to roads.</p> <p>Projects involve actions such as the removal of large slides; reconstruction, repair or relocation of roads damaged by surface erosion; fill failure, culvert failure and landslides; and stabilization of slopes. Work is accomplished using</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species. For example, maintenance actions that occur outside the RR, and is implemented during an extended dry period of the year (typically June-mid Sept), where no degradation of habitat indicators as a result of the activity exists.</p> <p>NLAA: Activities w/in RR that typically do not result in ground disturbance with sediment (including sand) delivery mechanisms to stream channels. LWD and riparian grown/succession are essentially unaffected.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA or are LAA.</p>	<ol style="list-style-type: none"> 1. A geotechnical engineer or other qualified personnel, such as a hydrologist, fisheries biologist, or soil scientist will document that proposed disposal sites for landslides and other waste materials are stable and outside the floodplain. Any disposal sites within the riparian reserve will be reviewed by an interdisciplinary team to confirm that the site is stable, is outside the floodplain, and has negligible chance of delivering sediment to streams or other water bodies. 2. All applicable NFP S&G's will be followed, as well as all applicable LRMP BMPs. Be consistent with Washington State Hydraulic Codes, as appropriate. 3. Maximize activities during late summer and early fall to avoid wet conditions. 4. Follow WDFW Standards for replacement stream crossing design and installation. Consider bridges or road abandonment, where possible. Use stream simulation on fish bearing streams. 5. Use effective and appropriate erosion controls as necessary to ensure that the likelihood of sediment delivery to streams or other water bodies is negligible. 6. Develop and carry an approved spill containment plan that includes having a spill containment kit on-site and previously identified containment locations. 	<p>For each fiscal year, report the number of road miles for NLAA projects</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>heavy equipment. Structures built entirely of rock, concrete, steel or other similar materials are not covered under this programmatic.</p> <p>Activities should always have a neutral or beneficial effect on sediment regime and/or channel extension.</p> <p>Immediate repair of storm-damaged roads to eliminate or minimize adverse hydrologic and sediment effects on waterways is covered under Road Maintenance.</p>		<p>7. Refuel power equipment (or use absorbent pads for immobile equipment) at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body.</p> <p>8. No removal of LWD from the riparian forest floor or active channel, except where necessary.</p>	
<p>ROAD DECOMMISSIONING, OBLITERATION, STABILIZATION, AND INACTIVATION</p> <p>This category includes the removal or stabilization of unnecessary, unstable, or poorly designed, constructed, or located roads; or portions of roads, with an overall goal of restoring hydrologic functions.</p> <p>Actions such as bridge and culvert removal, removal of asphalt and gravel, subsoiling or ripping of road surfaces, outsloping, waterbarring, fill removal, sidecast pullback,</p>	<p>No Effect: Actions that would not have measurable or notable effect to the stream environment or federally listed aquatic species. For example, actions that occur, during an extended dry period of the year (typically June-mid Sept) and no potential exists to deliver sediment or contaminants to the stream channel at a later time. Also, includes stabilization or inactivation of most road segments that are outside of the RR, where no degradation of habitat indicators as a result of the activity exists.</p> <p>NLAA: Activities w/in RR that typically do not result in ground disturbance with sediment delivery mechanisms to stream channels And have negligible adverse affects to riparian processes.</p> <p>LAA: Activities w/in RR that would likely result in ground disturbance with chronic or</p>	<p>1. A fisheries biologist and/or hydrologist should have substantial influence over the project goals and participate in planning process for each LAA project.</p> <p>2. Dispose of slide and waste material in stable, non-floodplain sites. Disposal of slide and waste material within existing road prism or adjacent hillslopes is acceptable to restore natural or near-natural contours, as approved by a geotechnical engineer or other qualified personnel.</p> <p>3. Minimize disturbance of existing vegetation in ditches and at stream crossings to the extent necessary to restore the hydrologic function of the subject road.</p> <p>4. Minimize soil disturbance and displacement, but where sediment risks warrant, prevent off-site soil movement through use of filter materials (such as straw bales or silt fencing) if vegetation strips are not available or are ineffective.</p> <p>5. Conduct activities during dry conditions. Maximize activities during late summer and early fall to avoid wet conditions.</p> <p>6. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-</p>	<p>For each Fiscal Year, report total miles of NLAA and LAA activities on FS roads.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
removal of surfacing, revegetating with native species and placement of large woody material and/or boulders, and roadway barricading to exclude vehicular traffic are included.	<p>episodic sediment delivery mechanisms to stream channels. Also, any in-stream work within or close proximity to listed fish species.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<p>water work must be requested and granted from the Services.</p> <ol style="list-style-type: none"> 7. Refuel power equipment (or use absorbent pads for immobile equipment) at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body. 8. Develop and implement an approved spill containment plan that includes having a spill containment kit on-site and previously identified containment locations. 9. Ensure that culvert removal restores natural drainage pattern of site as much as possible and that potential erosion areas are stabilized. 10. All applicable NFP S&G's will be followed, as well as all applicable LRMP BMPs . Be consistent with Washington State Hydraulic Codes, as appropriate. 11. Ensure that channel regrading is minimal or that grade contours allow for passage of all fish species life stages. 12. To the extent possible, culvert removal shall be done in isolation from stream flow. 	
<p>ROCK QUARRY OPERATIONS</p> <p>This category provides rock and gravel for use in road construction and maintenance, and for other activities such as restoration projects.</p> <p>Program includes activities within existing quarry boundaries including restoration, rehabilitation, obliteration of RR pits, drilling, blasting, crushing, sorting, loading, hauling on new or existing roads, and stockpiling material from decommissioned roads. Also includes collection of rock</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species. For example, actions that occur outside of the RR and where no degradation of habitat indicators as a result of the activity exists.</p> <p>NLAA: Actions that typically do not result in ground disturbance with sediment and/or contaminant delivery mechanisms to stream channels. Example: usually, dry season operation. Quarry operations would not decrease stream shade, LWM supply, channel complexity, or bank stability and would occur outside of wetted stream channel.</p> <p>LAA: Actions that likely result in sediment and/or contaminant delivery mechanisms to</p>	<ol style="list-style-type: none"> 1. Maintain all road accesses adequately, with seasonal stipulations, if appropriate. 2. For quarries that occur within RR, limit activities with the potential to introduce sediment into streams to occur only during the dry season (usually May 15 to October 15). If unusual circumstances (e.g., emergency road repair) require such activities to occur outside of the dry season, require all necessary Best Management Practices (BMPs) and other mitigation measures to prevent sediment movement into streams, and if appropriate initiate emergency consultation. 3. Include erosion control plans in pit operation plans for quarries to protect water quality, stream channels, and fish. 4. Avoid activities during wet periods, regardless of typical season, that have the potential to generate and deliver sediment to streams. 5. Minimize sedimentation potential by implementing appropriate measures to meet DOE turbidity standards. 	For each Fiscal Year, the total number of active NLAA and LAA quarries

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
within RR.	<p>stream channels. Effects would be minor and short-term. Example: Wet season operation. The development of any new quarry within the RR is considered LAA and must be consulted on individually.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>		
<p>ROAD PRISM SALVAGE, TREE CLEARING, AND HAZARD TREE REMOVAL</p> <p>This category provides for the sale and removal of downed trees within and adjacent to the road prism to provide access and removal of tree hazards. Also includes the clearing of trees from the road prism without sale and removal from site.</p> <p>Program activities consist of salvaging, removing and/or clearing of trees or portions of trees within the road prism (i.e. between top of cut to toe of fill) and trees adjacent to road prism that have been identified as a hazard by OSHA. This includes a combination of cutting, moving, loading and hauling as conditions warrant.</p> <p>When in riparian areas only those portions of trees within</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, such as clearing and removal of hazard trees within road prism portions located outside of the riparian reserve, where no degradation of habitat indicators as a result of the activity would occur.</p> <p>NLAA: Activities within riparian areas that would only remove potential LWM that exceeds present and future LWM targets (as defined by Watershed Analysis). Minor ground disturbance may occur that creates a potential sediment source, but no delivery mechanisms exist. Habitat indicators would not be adversely affected. Activity would not result in harm or harassment of any fish life stage.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA or are LAA.</p>	<ol style="list-style-type: none"> 1. No salvage within riparian areas, unless fisheries personnel determine that LWM objectives for stream and riparian areas in the proposed project area are met (as defined by WA and/or ROD S&G's). Leave downed logs on site where LWM is deficient. 2. Where it is safe and feasible, downed trees (or portions of downed trees) within the road prism >8 inches (at largest end) that are not removed for salvage will be moved or placed off to the stream side of the road or used for instream restoration projects. 3. Where it is safe and feasible, take actions to deter theft of LWM in riparian areas, such as moving tree portions away from immediate prism area in a manner that would make the LWM less visible or accessible. 4. Remove minimum number of trees required for safety. 5. Conduct activities to limit need for additional access or disturbance to other vegetation. Operate heavy equipment in a manner to avoid LAA effects. 	<p>For each fiscal year, report the number of hazard trees removed and the amount of acres affected for all NLAA activities.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
the road prism are covered in this programmatic consultation. For roads outside of Riparian Reserves the entire tree is included in this consultation.			
<p>RECREATION SITE, TRAIL, AND ADMINISTRATIVE STRUCTURE AND SKI RESORT MAINTENANCE, AND ASSOCIATED PUBLIC USE</p> <p>This category includes providing access to and use of public recreational activities (at campgrounds, picnic areas, trails, boat ramps, interpretive/educational sites, storage areas, administrative sites, etc.), including safety and property damage reduction. Includes operation and maintenance of existing ski resorts on Federally managed land, and tree hazard management along Federal roads used for recreation.</p> <p>Trails are maintained and reconstructed in response to recreational use to improve safety, prevent erosion, and prevent damage to resources.</p> <p>Maintenance of public recreation-related facilities</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, such as use and maintenance of trails and facilities outside of the RR, where no degradation of habitat indicators as a result of the activity exists..</p> <p>NLAA: actions w/in RR which would not transmit effects to stream channels and other water bodies where listed species are present, and would not disturb a substantial amount of woody vegetation w/in riparian areas of water bodies, and would not decrease stream shade, LWM supply or bank stability.</p> <p>LAA: Nearly any action, which would transmit effects to stream channels or other water bodies, would decrease stream shade, LWM, or bank stability, or which would disturb substantial woody vegetation w/in riparian areas. Effects should be short-term and/or extremely localized. Facilities that may result in incidental harassment of fish are included.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<ol style="list-style-type: none"> 1. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services. 2. Minimize adverse effects of brushing (loss of shade, bank stability, etc.) when trails or facilities occur within RR by leaving as large of an uncut buffer as possible (i.e., usually at least a 10 foot buffer along intermittent and ephemeral streams, and a 20 foot buffer along perennial streams). 3. Consider relocating mobile infrastructure away from potential hazard trees. Where relocation is not feasible, consider limbing or topping to alleviate the potential hazard. Where falling is deemed necessary and safe directionally fall trees toward stream channels and RR and leave the tree on site. 4. Do not remove down wood from sites (except movement to clear trails and campsites) within 1 site potential tree of a stream channel unless fisheries personnel determine that LWM objectives for stream and riparian areas in the proposed project area are met (as defined by Watershed Analysis (WA) and/or Northwest Forest Plan ROD S&G's) and that future LWM recruitment is assured through provision of riparian forest attributes (e.g. nurse logs and soil development to encourage germination, growth and succession of riparian canopy species). Take steps to prevent firewood gathering and theft within RR. 5. For downed trees across a trail, retain the maximum feasible length when clearing. This could include using non-traditional methods or relocating trails. 6. Prevent and minimize erosion from trails by designing and maintaining proper drainage structures with adequate spacing of waterbars especially before stream crossings. 7. Dispose of small (<3 cubic meters) slide and slump materials in 	<p>For each FY, report the total number of NLAA and LAA recreation and administration sites (acres) and trails (miles) maintained</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>may include activities such as pruning of brush and trees, operation of existing sewage facilities, maintaining buildings, and operation of sanitary facilities using hand tools and power equipment. Each ski resort area includes erosion control and hazardous waste plans.</p> <p>Program activities consist of tree hazard management (at developed and dispersed recreation facilities, along roads and trails, at rights-of-way, and for adjacent non-Federal land), facility maintenance, repair, and upgrade; trail maintenance, off-highway vehicle trail maintenance, repair, and upgrade (including that of stream crossings; typically using hand tools, hand power tools, small motorized equipment), brushing, tread work, minor realignment, and removal of downed trees from a trail. Does not include expansion of infrastructure or salting to maintain snow conditions. Does not include WDOT sanding, plowing and blowing operations. Does not include actions that are not directly related to the repair or construction of trails or trail</p>		<p>stable areas and away from stream channels.</p> <ol style="list-style-type: none"> 8. Refuel power equipment at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body, or as far as possible from the water body where local site conditions do not allow a 150 foot setback. 9. Limit developed and dispersed site user activities harming riparian vegetation, in-stream habitat, or otherwise causing incidental take of listed fish and implement habitat rehabilitation and programs and incidental take reduction efforts including localized access closures where needed. 10. Conserve and restore forest processes through silvicultural treatments using native/adapted canopy species, and using proximal comparable functioning riparian areas as a guide to desired future riparian condition and structure. 11. Where chronic problems (i.e. erosion, water quality, or disturbance) exist in key habitat areas, consider relocation of the causative agent and rehabilitation of the site. 12. Minimize sediment delivery to streams to the extent possible by following erosion control plans. 13. Apply appropriate project specific Water Quality Best Management Practices (USDA 1988) and be consistent with Washington State Hydraulic Codes, as appropriate. 14. As leases lapse or homes are damaged or destroyed by falling trees, flood or fire, negotiate to move to replacement lots out of the floodplain. 15. Manage and maintain boat ramps and associated areas to limit impacts on vegetation, water quality (including petroleum products), and sediment production. 	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>stream crossings. Does not include modifications that expand the footprint of the existing home, nor improvements to septic systems. Does not include the development of new boat ramps or new trails.</p> <p>NOTE: Upgrade of facilities or trails must not result in “take” or a more adverse situation for listed and proposed fish species.</p>			
<p>MISCELLANEOUS SPECIAL USE PERMITS AND LEASES</p> <p>This category allows miscellaneous designated activities on Federal land.</p> <p>Program activities include permits for (but not limited to): group recreation, outfitters and guides (including surface water recreating), use of Federally owned structures, resort operation on Federal land, private clubs, recreational residences, communication sites, apiaries, research study areas, weather still photography, motion picture and television locations.</p> <p>Special use permits issued to</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species. For example, use outside of the RR, where no degradation of habit indicators as a result of the activity will occur.</p> <p>NLAA: Action and interrelated and interdependent actions in riparian areas that are unlikely to transmit sediment to stream channel and would not reduce potential LWM recruitment or other riparian functions. Other habitat indicators would not be adversely affected.</p> <p>LAA: Permits for surface water recreating are covered; all other programs must be consulted individually.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<ol style="list-style-type: none"> 1. Prior to issuance of a special use permit, a fisheries biologist shall make a written evaluation of proposed action and any potential adverse effects of the action. Individual consultation must occur if effects of action are more than negligibly likely to take individuals of listed fish species or adversely affect habitat in riparian area beyond those described in chapter 5 of the BA. 2. Special use permits for surface water recreating shall designate launch and take-out locations; avoid disturbance of listed adult fish; apply resource protection clauses that maintain habitat and minimize sedimentation and accidental capture and harm to listed species; and where appropriate include education materials describing listed species’ identification and habitat requirements annually with issuance of special use permits. Apply resource protection clauses to special use permits, especially in areas of known or suspected spawning activity. 	<p>For each Fiscal Year, report the number of LAA permits issued.</p>

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<p>members of the public to allow and track activities otherwise not permitted/monitored.</p> <p>The Federal analysis of effects should include an analysis of the effects of interrelated and interdependent activities, which the permits enable on non-Federal land.</p>			
<p>TELEPHONE LINE AND POWER LINE RENEWAL SPECIAL USE PERMITS/RIGHTS-OF-WAY GRANTS</p> <p>This category includes vegetation, road, and pole maintenance associated with the renewal of telephone lines and non-Federal Energy Regulatory Commission-related powerline special use permits. Permitted road maintenance only applies to non-system spur roads needed to access lines.</p> <p>Vegetative maintenance activities consists of brushing understory vegetation, tree limbing, chipping slash, and falling of hazard trees underneath or along telephone line and powerline corridors. Road maintenance consists of actions which are similar to</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, such as vegetative, road, and pole maintenance outside of the RR, where no degradation of habitat indicators as a result of the activity exists.</p> <p>NLAA: Action and i/i actions in riparian areas that are unlikely to transmit sediment to stream channel and would not reduce potential LWM recruitment or other riparian functions. Other habitat indicators would not be adversely affected. Vegetation manipulation which would not affect stream channel shade, LWM, or bank stability, etc., especially outside of riparian areas, may be NLAA.</p> <p>LAA: Actions, which have a reasonable likelihood of adverse effect. For example, actions that could transmit sediment and/or turbidity to stream channels would be an LAA, as would nearly any in-channel work. Vegetation manipulation within riparian areas would often , but not invariably, be</p>	<ol style="list-style-type: none"> 1. Apply applicable PDCs from Road Maintenance programmatic category. 2. Streams should be protected to the greatest extent possible from raw concrete, concrete dust and wash water. Concrete preparation will occur a minimum of 150 feet from all water bodies. 3. Minimize brushing in riparian areas by leaving a minimum 10 foot buffer along intermittent and ephemeral streams, and a minimum 20 foot buffer along perennial streams. 4. Hazard trees should be directionally felled toward streams and riparian areas where it is safe and feasible to do so. HPA required if felling trees into a stream. 5. Do not remove or cut hazard or blowdown trees in RR. 	<p>For each FY, report the number of NLAA and LAA permits renewed</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>those described under that programmatic category. Pole maintenance includes repair and replacement of damaged and downed poles and lines. Equipment (backhoes and trucks) may be used to carry, straighten and dig footings for poles. This activity does not include use of herbicides.</p> <p>The Federal analysis of effects should include an analysis of the effects of interrelated/interdependent activities that Federal permits enable on non-Federal land.</p>	<p>LAA: Effects should be short-term and localized. Vegetative treatments that retard long-term growth and survival of riparian vegetation important for stream habitat must be consulted on individually.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>		
<p>DISCRETIONARY ROAD USE PERMITS (non-timber related)</p> <p>This category includes the issuance of discretionary permits to adjacent landowners for access to non-federal land using existing roads that do not require renovation or reconstruction. Access to non-federal land would be for activities that are non-timber harvest related. Duration of these permits is generally 2-4 years, but may be renewed beyond this. In addition, road use permits may entail the following: dust</p>	<p>NLAA: Action and interrelated and interdependent actions within riparian areas (federal or non-federal land) that are unlikely to transmit sediment to stream channel and would not reduce potential large woody material recruitment or other riparian functions. Other habitat indicators would not be adversely affected. Negligible potential to decrease hydrologic recovery of relevant drainages to below critical threshold. Example: Non commercial travel on paved roads and dry-season use. (Contradicts intent of this section being 'Non-timber' thus, no "hauling"</p> <p>LAA: Action and interrelated and interdependent actions within riparian areas that could transmit short-term, minor</p>	<ol style="list-style-type: none"> 1. Specify seasonal restrictions necessary to prevent damage to riparian and aquatic resources. 2. Use only approved applications of dust abatement materials where appropriate. 3. Require rocking, seeding and mulching, and drainage maintenance, as needed, to prevent delivery of sediment to stream courses. 4. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services. 	<p>For each FY, the number of NLAA and LAA permits issued.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>abatement, brushing rocking, culvert and drainage maintenance, and grading. Private use of Federally controlled roads shall meet FS LRMPs.</p> <p>The Federal analysis of effects would include direct and indirect effects of the action together with the effects of interrelated and interdependent activities that Federal actions enable on non-Federal land. Moreover, the proposed access route on Federal land will help the permitted and/or enabled private action to have the least adverse impact to ESA-listed species (because of a reduction of road construction, etc.) of all practical (i.e., non-helicopter) access alternatives.</p> <p>Issuance of discretionary road use permits to adjacent landowners for the purpose of accessing non-federal lands for timber harvest operations is not covered under this Programmatic BA.</p>	<p>amounts of sediment to stream channel and have minor effects on large woody material recruitment to the stream channel. Other habitat indicators with minor, short-term adverse affects. Minor potential to decrease hydrologic recovery of relevant drainages to below critical threshold in short-term. Construction of new roads are not covered under this programmatic and must be consulted on individually.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>		
DISCRETIONARY RIGHT-OF-WAY PERMITS (non-timber related)	No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, such as	<ol style="list-style-type: none"> 1. Specify seasonal restrictions necessary to prevent damage to riparian and aquatic resources. 2. Use only approved applications of dust abatement materials where appropriate. 	For each FY report the number of NLAA and LAA permits issued.

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>Includes easements and grants. This category provides issuance of discretionary access across Federal lands to conduct actions on non-Federal lands. Rights-of-way may include cooperative or exchange agreements and associated maintenance and the approval of access across Federal lands issued to states, counties, municipalities, and private landowners for construction and maintenance of roads, utilities, communications, and other similar infrastructure and facilities. On Federal lands, access generally includes right to cut trees and other vegetation and to construct temporary or permanent access. New or reauthorized private construction and use of roads across Federally administered lands shall meet FS LRMPs.</p> <p>The Federal analysis of effects would include direct and indirect effects, together with the effects of interrelated and interdependent activities, which Federal actions enable on non-Federal land. In addition, the proposed access route on Federal land should help the permitted and/or</p>	<p>access to land outside of the RR, where no degradation of habitat indicators as a result of the activity exists.</p> <p>NLAA: Action and interrelated and interdependent actions within a riparian area are unlikely to transmit sediment to stream channel and would not reduce potential large woody material recruitment or other riparian functions. Other habitat indicators would not be adversely affected. Negligible potential to decrease hydrologic recovery of relevant drainages to below critical threshold. Example: paved roads use and dry-season use.</p> <p>LAA: Action and interrelated and interdependent actions within riparian areas that could transmit short-term, minor amounts of sediment to stream channels and have minor effects on large woody material recruitment to stream channels. Other habitat indicators with minor, short-term adverse affects. Minor potential to decrease hydrologic recovery of relevant drainages to below critical threshold in short-term. Construction of new roads are not covered under this programmatic and must be consulted on individually.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<ol style="list-style-type: none"> 3. Require rocking, seeding and mulching, drainage maintenance, and stream rerouting around culvert replacement sites, as needed, to prevent delivery of sediment to stream courses. 4. Provide for fish passage needs and culvert capacity as per WDFW standards. 5. Limit construction of new and semi-permanent roads to stable, non-riparian areas or ridgetops. Semi-permanent roads are those that are used for longer than one dry season but are decommissioned at the end of the contract. 6. Follow ROD Road Management S&G's and FS LRMP BMPs for road construction on Federal land. Use existing roads and corridors to the greatest extent possible. 7. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services. 8. Install and decommission temporary roads during the dry season of the same year (usually May 15 to October 15). 9. Logs and rootwads generated through reserve clearing for USFS stream and riparian restoration projects will be stockpiled as needed for future and/or offsite use. 	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>enabled private action to have the least adverse impact to ESA-listed species (because of a reduction of road construction, etc.) of all practical (i.e., non-helicopter) access alternatives.</p> <p>Typical activities include granting access or easements to private residential properties, or acquiring access for trail easements or road access to campgrounds.</p>			
<p>AQUATIC AND RIPARIAN HABITAT IMPROVEMENT PROJECTS</p> <p>Aquatic habitat projects are generally completed to restore habitat conditions for fish and wildlife species, such as restoring spawning, rearing, and migratory corridor conditions in streams and lakes. Aquatic habitat restoration projects are generally done within the stream channel or adjacent floodplain. Project maintenance is also a significant component of each project. Vegetation objectives include increasing growth and survival of remaining conifers in riparian and upslope areas, with the ultimate intent of growing large trees for late-</p>	<p>NLAA: Actions in which the wetted stream channel or lake is not entered when listed species are present, which do not transmit turbidity to areas where listed species are present, are unlikely to transmit disturbed soil to water bodies, and would not disturb a substantial amount of woody vegetation riparian areas. Examples might included fence construction and tree planting. Also may include in-channel work above or below listed species presence in some situations.</p> <p>LAA: Nearly any action in which the wetted stream channel is entered when listed species are present or turbidity is transmitted to such areas or areas suitable for spawning, where disturbed soil is likely transmitted to water bodies, and which would disturb substantial amounts of woody vegetation or substantially affect any other riparian functions. Only proven, state-of-the-art projects and techniques are covered programmatically. Any thinning of</p>	<ol style="list-style-type: none"> 1. Ensure that a professional fisheries biologist is involved in the design of all in-stream projects. Fish passage projects should be designed by, and on-site construction supervised by, an experienced professional fisheries biologist, hydrologist and/or engineer. 2. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services. 3. Stabilize potential erosion areas and control sedimentation. Hard bank protection should be a last resort and the following options should be explored, in order of priority: tree revetments, stream barbs/flow deflectors, toe-rock, and vegetation riprap. USE WDFW ISPG. 4. All disturbed areas shall be rehabilitated and stabilized by seeding & planting with native seed mixes 5. Minimize the number and length of access points through riparian areas 6. Heavy equipment should be cleaned and free of leaks before used in the stream channel and time in which heavy equipment is in the stream channel should be minimized. Equipment should not be stored in stream channels when not in use to avoid effects of vandals, accidents, or natural disasters. 7. Develop and implement an approved spill containment plan that 	<p>For each FY, estimate the total LAA miles of stream treated, and LAA acres of Riparian area treated.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>successional old-growth habitat and LWD for stream habitat.</p> <p>This category includes the placement of large wood (whole trees or portions of trees), boulders and gravel into the channel, construction and maintenance of riparian fences, excavation of side channels and alcoves, riparian silvicultural activities, and stream bank and channel stabilization. Project access roads typically are rehabilitated with techniques, which include seeding, waterbars, ripping and blocking. Passage improvements include the replacement of barrier culverts with passable culverts, pipe-arches or bridges; construction, maintenance, and cleaning of fish ladders and placement/construction of sills (boulder, wood, concrete) to improve access to culverts. Work may be accomplished using manual labor, heavy equipment or helicopters and may involve the use of this equipment in the stream channel. Includes site preparation, cutting hardwood trees and brush to create planting sites and/or openings,</p>	<p>riparian areas beyond the age/structure of ecosystem initiation or competitive exclusion developmental stages (Cary and Cuertis 1996) within plantations, i.i. where even-aged stands are growing because of previous clearcuts.</p> <p>Consult on the activity individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<p>includes having a spill containment kit on-site and previously identified containment locations. Refuel equipment (including chain saws and other hand power tools) at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body.</p> <ol style="list-style-type: none"> 8. No conifers should be felled in the riparian area unless conifers are fully stocked, or if necessary (i.e., No other practicable alternative) for safety. If necessary for safety, trees should be felled toward the stream and left in place, or placed within the stream channel or floodplain at the site. 9. Use whole trees or tree pieces that are 1.5-2.0 times the active channel width (if available) with attached root-wads (i.e. some are key pieces) and aggregated in a manner to most closely mimic natural accumulations of LWD for that particular stream type. Use cable in project design sparingly and only when conditions do not exist to anchor large wood naturally between riparian trees or where stream power is great enough that wood meeting size criteria cannot be stabilized through natural anchoring. Favor use of bioengineering techniques. 10. When replacing culverts, follow NFP and WDFW guidelines for design and installation and minimize sedimentation potential by implementing appropriate measures to meet DOE turbidity standards. Consider use of driveable dips, bridges, and other designs that minimize or preclude fill volumes in active stream channels that support fishes or that can conduct debris torrents to and impact anadromous fish habitats. 11. Apply appropriate project specific Water Quality Best Management Practices (USDA 1988) and be consistent with Washington State Hydraulic Codes, as appropriate. 12. Tree canopy cover in gaps will not be reduced below 40% and no more than 5% of the riparian reserve will be comprised of gaps. 13. No chemicals, pesticides, or herbicides will be used. 14. Trees felled within riparian reserve will be used to restore aquatic and terrestrial habitat by returning large and coarse woody debris levels to within the range of natural variability. 15. Apply silvicultural practices for riparian areas to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain stocking potential of local plant 	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>planting of seedlings, tubing, and mountain beaver control, pruning and precommercial thinning (young stand density management). Hand tools and chain saws are usually used. Stands or trees typically between</p> <p>2-8" DBH, individual openings for riparian restoration are 1 acre or less and are scattered through the riparian area. Carcass enrichment projects, which attempt restoration of historic and riparian nutrient conditions are included, as are in-channel site preparation for smolt trap operations.</p> <p>Riparian restoration projects with commercial sales as a by-product are not covered programmatically and require individual consultation. Project example is thinning riparian areas in the ecosystem initiation or competitive exclusion developmental stages (Cary and Cuertis 1996) within plantations, i.e. where even-aged stands are growing because of previous clearcuts, burn, or disease. The intent of riparian restoration projects is to treat young riparian</p>		<p>communities.</p> <ul style="list-style-type: none"> a. maintain or improve streamside shading b. maintain or improve bank stability c. maintain or reduce sediment delivery from sources outside of the channel d. maintain future LWD recruitment <p>16. Shade will not be decreased through silvicultural treatments. Treatment prescriptions will target sub-dominant, non-canopy trees to conserve or accelerate riparian functions with negligible affects on effective shade.</p>	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>stands that otherwise cannot be expected to grow and succeed to a mature functional riparian state. Typically the riparian treatment is necessary because of prior silvicultural treatments.</p> <p>Riparian silvicultural activities includes felling hardwood trees (if abundant beyond natural stocking levels) and conifers (14" max diameter) to release conifers, create planting sites and or gaps with canopy closure of 40-50% (no larger than 0.25% acre) (Carey et al. 1999). Planting of selected conifer and hardwood seedlings, animal damage control, subsequent brush and alder removal (manual maintenance).</p> <p>Residual stand structure, tree stocking levels and species compositions would be based on local plant associations and site potential.</p>			
<p>FISHERIES, HYDROLOGY, WILDLIFE, BOTANY, AND CULTURAL PROGRAMS (including near and instream surveys, and environmental education)</p> <p>This category includes</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, are outside of riparian reserves, where no degradation of habit indicators as a result of the activity exists.</p>	<ol style="list-style-type: none"> 1. Minimize amount of disturbance to fish by training personnel in survey methods that prevent or minimize harassment of fish. Contract specifications should include these measures. 2. Avoid impacts to fish redds. When possible, avoid sampling during spawning periods. 3. Follow Guidelines for Timing of In-Water Work (Table 1, pg 43-54, MOU between WDFW and USFS, Jan 2003), where relevant, except where the potential for greater damage to water quality and fish 	<p>For each FY, report the total NLAA and LAA stream mileage surveyed and inventoried.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>assessment and monitoring of aquatic and riparian habitat conditions; assessing and monitoring individuals and communities of vertebrate, invertebrate and botanical species; assessing cultural and historic resources; and educating the public about aquatic and riparian resources/values.</p> <p>Program activities consist of: aquatic habitat inventories; spawning surveys; snorkeling surveys; aquatic macroinvertebrate collecting; riparian vegetation surveys; wildlife surveys; water quality monitoring; cultural resource assessments (including excavating test pits <1m² in size); and supervised school and public education (including Salmon Watch, Outdoor Science and Teachers in the Woods) activities.</p> <p>Note: Any activities that involve direct “take” of a species should be covered under Section 10 permits (i.e., hook and line, netting, trapping, seining, electrofishing, etc). However, surveys oriented towards observing fish presence and occupancy (i.e., spawning surveys and snorkeling)</p>	<p>NLAA: Activities which typically do not result in ground disturbance where sediment delivery mechanisms to stream channels do not exist, and would not disturb a substantial amount of woody vegetation w/in riparian areas, and generally would not affect other riparian functions</p> <p>LAA: Activity typically involves sampling, observation, and assessment in direct or close proximity to fish species and their habitat. This can result in temporary disturbance of individual ESA-listed fish, but does not involve the deliberate take of these species (electrofishing or smolt trapping, for example)*. Activity does not adversely modify or destroy habitat. Activities may result in the incidental “take” of individual fish but would not be expected to adversely affect fish populations at the local level (6th or 7th field HUC)</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p> <p>*Deliberate take of an ESA-listed species for which take is prohibited requires a Section 10 (a)(1)(A) permit, and is not authorized by this or any other Section 7 consultation.</p>	<p>habitat exists. Exceptions to WDFW guidelines for timing of in-water work must be requested and granted from the Services.</p> <ol style="list-style-type: none"> 4. Do not walk on fish redds. 5. Coordinate with other local agencies to prevent redundant surveys. 6. Place excavated material from cultural resource test pits away from stream channels. Replace all material back into test pits when survey is completed. 7. Use multiple stream sites for informational field trips to minimize effects on any given stream or riparian area. 8. No interbasin transfer of fish carcasses. 	

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
involve take that is incidental to the purpose of the activity, hence, can be covered under Section 7.			
<p>NON-COMMERCIAL VEGETATION TREATMENTS</p> <p>This category includes the use of manual or light powered equipment (i.e., does not include the use of bulldozers, excavators, etc.), and silviculture through the reduction of competition/predation and collection of plant material; prevent and control the spread of non-native vegetation (noxious weeds); enhance habitat for native vegetation and/or wildlife.</p> <p>Maintenance of meadow areas in limited, localized areas, mainly to enhance food resources and habitat for wildlife. Meadows, some of which are adjacent to streams, are maintained in early seral stages by mowing and pruning.</p> <p>Program activities consist of: preparing planting sites (typically using chainsaws, machetes and other similar hand or power tools);</p>	<p>No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or federally listed aquatic species, where no long term degradation of habitat indicators or aquatic processes occur as a result of the activity exists.</p> <p>NLAA: Activities which typically do not result in ground disturbance where sediment delivery mechanisms to stream channels do not exist, and would not disturb a substantial amount of woody vegetation within riparian areas, and would not decrease stream shade, LWM supply or bank stability. Precommercial thinning and prescription burning with negligible effect on hydrologic recovery on project scale, outside RR's.</p> <p>LAA: Activity typically results in ground disturbance that creates a potential sediment source through bare soils or destabilization of proximal hillslopes or would disturb a substantial amount of woody vegetation w/in riparian areas, or would decrease stream shade, LWM supply or bank stability. Overall, activity should not retard long-term growth and survival of vegetative species that are important to maintaining and creating fish habitat within the Riparian areas.</p> <p>Precommercial thinning and prescription</p>	<ol style="list-style-type: none"> 1. Maintain an untreated or modified treatment area within 10 feet along ephemeral and non-fish bearing intermittent streams, and a 20 foot untreated buffer on perennial streams, to prevent any potential adverse affects to stream channel or water quality conditions. 2. Fisheries, hydrology or other qualified personnel shall review proposed activities to define the extent of untreated or modified treatment areas. 3. Refuel power equipment (or use absorbent pads for immobile equipment) at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body, or as far as possible from the water body where local site conditions do not allow a 150-foot setback. 4. Silvicultural activities must be carried out using PDC's outlined in the 'Riparian Habitat Improvement project' section of these tables. 	<p>For each FY, report the total number of NLAA and LAA acres of non-commercial vegetation treatment.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>controlling brush and pruning using hand and power tools; pre-commercial thinning of young trees (typically 2"-8" dbh); improving stand conditions using hand application of fertilizers, controlling animal damage by trapping, tubing, rodent baiting, or other manual method (excluding beaver <i>C. Canadensis</i>); planting trees and other desired vegetation; collecting cones, seedlings, etc.; mulching; meadow mowing and tree topping, girdling, etc. to enhance wildlife habitat; and prescription burning outside of RR.</p> <p>Prescription burns for timber sales will be covered under timber sale individual project consultations.</p> <p>Does not include use of herbicides.</p> <p>Note: Wildfire suppression-related activities are covered separately under National Fire Plan Consultation Procedures.</p>	<p>burning with more than a negligible effect on hydrologic recovery on project scale, but with minor effects on peak flows. Intentional prescription burning within riparian areas and actions with more than minor effects on peak flows is not covered under this programmatic consultation.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>		
<p>PUMP CHANCE/HELIPOND MAINTENANCE AND USE</p> <p>This category includes maintenance and use of pump</p>	<p>NLAA: Activities, which typically do not result in ground disturbance with sediment delivery mechanisms to stream channels. Would otherwise adversely affect riparian functions. Pumping maintains a continuous</p>	<p>1. Dispose of slide and waste material in stable, non-floodplain sites approved by a geotechnical engineer or other qualified personnel. Use stable sites beyond floodplain within riparian area only if an interdisciplinary team has identified the area as stable and not susceptible to delivery of sediment to the adjacent stream. Provide</p>	<p>For each FY, report total number of activities at LAA sites that were maintained or used.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>chances and heliponds to support fire suppression and dust abatement activities.</p> <p>Access routes to pump chances are maintained by removing vegetation from trails to pumper trucks and/or helicopter access points, removing trees from helicopter loading sites and the installation of boulders (or similar) to increase pool depth. Also included is dredging of existing heliponds to improve water storage capacity; and installation of drain pipes, riprap and liners on ponds. Withdrawals from streams and ponds may be used for a number of activities (e.g. fire control, dust abatement, compacting roads, etc.). Water for fire control is typically not withdrawn every year.</p> <p>Does not include construction of new heliponds/pump chances.</p> <p>Note: Wildfire suppression-related activities are covered separately under National Fire Plan Consultation Procedures.</p>	<p>surface flow and the original wetted width of the stream and there is negligible risk of incidental take caused by pump entrainment/screen impingement.</p> <p>LAA: Activity typically results in ground disturbance that creates a potential sediment source with delivery mechanism. Water withdrawal may result in occasional entrainment, impingement, or stranding of fish. Deepening of pools in fish-bearing streams could be accomplished through installation of (fish-passable) boulder or cobble weirs, but not excavation. Overall, activity should not retard long-term growth and survival of vegetative species that are important to maintaining and creating fish habitat within the Riparian area.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA.</p>	<p>the erosion control necessary to minimize the likelihood of sediment delivery to water bodies. Use sediment control measures such as straw bales, filter cloth, or sediment fences when conditions warrant their use.</p> <ol style="list-style-type: none"> Minimize disturbance of existing riparian vegetation to the greatest extent practical; in particular, maintain shade, bank stability, and large woody material recruitment potential. Maximize maintenance activities during late summer and early fall to best avoid wet conditions. Apply appropriate project specific Water Quality Best Management Practices (USDA 1988) and be consistent with Washington State Hydraulic Codes, as appropriate. Do not pump from streams that do not have continuous surface flow, except in emergency situations. When pumping water in all situations from streams, ensure that at least one-half the original streamflow volume remains below the pump site. Refuel power equipment (or use absorbent pads for immobile equipment) at a location remote from water bodies (at least 150 feet distant) to prevent direct delivery of contaminants into a water body or as far as possible from the water body where local site conditions do not allow a 150 foot setback. Fisheries, hydrology or other qualified personnel should work with engineering/fire personnel to review proposed activities to minimize potential effects to stream channel conditions and water quality. The decommissioning of unnecessary stream pump chances should be encouraged, as should the switch toward the use of off-channel ponds. Water withdrawals should not target low flow streams that can't sustain the withdrawals. As appropriate, water withdrawal with fish present must have a fish screen installed, operated and maintained in accordance with NOAA Fisheries fish screen criteria. 	
SPECIAL FOREST PRODUCTS AND ORNAMENTAL ROCK	No Effect: Actions that would not have a direct or indirect, measurable or notable effect to the riparian area, stream habitat or	<ol style="list-style-type: none"> Fisheries, hydrology, or other qualified personnel should review collection areas proposed within riparian areas, and set boundaries or other limits as necessary to ensure that collection activities will 	For each FY, report the number of NLAA permits

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>COLLECTING (mineral sales)</p> <p>This category provides for the sale and collection of vegetative forest products and non-mining related, ornamental rock. Also to allow the sale and collection of cobbles, boulders, etc. for ornamental use.</p> <p>Program activities consist of: collecting mosses, mushrooms, greenery (boughs, leaves, fern fronds, vine maple, salal, huckleberry, etc.), ferns, cascara peelings, grasses, burls, cones, Christmas trees, transplants, scion wood, limbs, poles, posts, shake and shingle bolts, firewood collecting, and ornamental rock/ river cobble collecting. This category may include actions that occur within riparian areas, but likely would not result in ground disturbance or sediment delivery to stream channels. These actions are unlikely to reduce stream shade, large woody material, channel complexity, or streambank stability.</p> <p>Rock collection must be conducted with hand methods,</p>	<p>federally listed aquatic species, by restricting access to land outside of the RR, where no degradation of habit indicators as a result of the activity exists. For example, mushroom, bough and other dispersed vegetative product collecting outside of the riparian area.</p> <p>NLAA: Activities inside and outside riparian areas that are unlikely to transmit sediment and would not reduce potential LWM recruitment or degrade or adversely affect other riparian functions. Ornamental rock collected from outside of wetted channel.</p> <p>Consult on the action individually if the activity exceeds the typical range of effects as described in Chapter 5 of the BA or are LAA.</p>	<p>not adversely affect riparian and aquatic habitat functions.</p>	<p>issued.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
without vehicle entry into the active stream channel (bankfull channel) and without disturbance to riparian vegetation. Rock removal should be limited by area and frequency of collecting through the permitting process to preclude measurable changes or shifts in habitat units (e.g. pool to riffle/run habitat), decreases in channel edge complexity for summer-rearing juveniles, or in the amount or character of interstitial substrates and edge habitats for juvenile/downstream migrant winter rearing and shelter.			
<p>SPIRIT LAKE TUNNEL Inspections, Maintenance</p> <p>Annual inspections and maintenance of Spirit Lake Tunnel, located on Mt. St. Helens National Volcanic Monument, to ensure safe water levels in the Spirit Lake basin and prevent saturation and failure of unstable materials blocking the original outlet channel.</p> <p>Spirit Lake Tunnel is an 8,465 foot long gated tunnel for USFS to provide safe drainage from Spirit Lake through a debris plug to South</p>	<p>NLAA: Activities, which typically do not result in ground disturbance with sediment delivery mechanisms to stream channels. Would not decrease stream shade, LWM supply or bank stability. Annual inspections and maintenance would have a negligible risk of incidental take caused by juvenile stranding.</p> <p>The lower ¼ mile of Coldwater Creek, below an impassible falls, is accessible to listed winter steelhead. Winter steelhead do not use Coldwater Creek for spawning (per.comm. Dan Rawding and John Weinheimer, WDFW). The accessible portion of Coldwater Creek may be used for some short term rearing by juvenile winter steelhead. However, during August few, if any, have been observed in this area (per.</p>	<ol style="list-style-type: none"> 2. Inspections will occur over an 8-hour period with a 1-1/2 hour ramping down (25% gate closure every ½ hour) of the outlet flow until the gate is fully closed. The inspection inside the tunnel will take approximately 4 hours. Upon completion of the inspection, the outlet gate will be opened at a rate of 25% every ½ hour. 3. Tunnel maintenance and repairs to the tunnel will follow the same ramping procedure that is used for inspections. The tunnel flows will not be ramped down until the contractor is on site and ready to enter the tunnel. 4. Tunnel closures would not occur during the period of April 1 through July 15 (except in case of an emergency), which is the time considered critical for the rainbow and cutthroat trout spawning and emergence in South Coldwater Creek. 5. No tunnel closure will occur at anytime without notification of the area habitat manager (WDFW). If at that time prevailing conditions warrant modification of these terms the Forest will incorporate necessary adjustments into any current planned maintenance or repair work. 6. Under actual emergency conditions every reasonable effort will 	<p>For each FY, report the date and number of inspections made at the Spirit Lake Tunnel.</p>

Program and Description	Typical Effects and Determination	Project Design Criteria	Reporting Requirements
<p>Coldwater Creek. Annual and periodic inspections determine the conditions of tunnel and intake structure and to determine maintenance actions required.</p> <p>Maintenance work requires dewatering of the tunnel for extended periods. Past maintenance work has required closure periods of one week to five months depending on type and scope of work.</p> <p>Equipment access to the downstream tunnel portal may require entry to South Coldwater Creek below the tunnel.</p> <p>In the event of an emergency that requires emergency intervention to protect the earthen dam (e.g., from catastrophic failure), emergency consultation procedures (i.e., notifying NOAA FISHERIES of FS actions) will be used.</p>	<p>comm. Dan Rawding and John Weinheimer, WDFW). The planned ramping rate changes, with maximum reduction in Coldwater Creek flow by 60%, will minimize any potential to strand juvenile winter steelhead in the lower creek, if any are present</p>	<p>make to adhere to the established operating procedures. However, timing and conditions may preclude adherence to all terms.</p> <p>7. The following Best Management Practices (BMPs) will be used to minimize sedimentation when entering the downstream end of the tunnel (through South Coldwater Creek).</p> <ol style="list-style-type: none"> All work within the tunnel shall be conducted in the dry, utilizing a temporary flume or bypass through the work site. All water that exits from the work area shall be free of contaminants before it re-enters the South Coldwater Creek. All unnatural (e.g., construction and maintenance material) debris resulting from work in the tunnel shall be removed from the tunnel and placed so that it shall not re-enter the water. Extreme care shall be taken to assure that no deleterious materials, such as fresh concrete, cement, lime, petroleum products, chemicals, etc., be allowed to enter the water. Appropriate methods shall be used to prevent spillage or discharge of materials when transferring materials into the tunnel work areas. Accumulated soil or debris shall be removed from the tracks, wheels, tires, and undercarriage of equipment prior to entering the tunnel. Equipment entering the tunnel shall be cleaned and properly maintained to prevent petroleum products from entering the water. Concrete features shall be cured for at least three to seven days prior to water encroachment. No equipment shall operate within the flowing tributaries of South Coldwater Creek, unless tied to provisions specified in HPA. Temporary culvert or bridge crossings shall be constructed to provide access to the tunnel portal. All natural wood in Spirit Lake will be left in the lake basin, put into South Coldwater Creek, or into the Toutle River (downstream of the tunnel). 	

Table 3. References for additional background information on listing status, protective regulations, and biological information for the listed and candidate species considered in this Opinion.

Species and Agency	Listing – ESU or DPS T-Threatened, P-Proposed, C-Candidate	Date of Federal Listing	Federal Register Reference
Steelhead NOAA Fisheries	T – Lower Columbia T – Middle Columbia	March 19, 1998 March 25, 1999	Vol. 63, No. 53, p. 13,347 Vol. 63, No. 53, p. 14,517
Coho Salmon NOAA Fisheries	C – Lower Columbia/ SW Washington	July 25, 1995	Vol. 60, No. 142, p. 50,539
Chinook Salmon NOAA Fisheries	T – Lower Columbia T – Puget Sound	March 24, 1999 March 24, 1999	Vol. 64, No. 56, p. 14,308 Vol. 64, No. 56, p. 14,308
Chum Salmon NOAA Fisheries	T - Columbia River	March 25, 1999	Vol. 64, No. 57, p. 14,508

Table 4. Fifth-field watersheds representing conditions of the programmatic action area

4th Field	5th Field	Condition
Lewis River (17080005)	East Fork Lewis River	<i>Functioning at Risk</i>
	Muddy River	<i>Functioning at Risk</i>
	Upper Lewis River	<i>Functioning at Risk</i>
Lower Cowlitz River (17080005)	Tilton River	<i>Not properly Functioning</i>
Middle Columbia-Hood River (17070105)	Little White Salmon River	<i>Not properly Functioning</i>
	White Salmon River	<i>Functioning at Risk</i>
	Wind River	<i>Functioning at Risk</i>
Nisqually River (17110015)	Upper Nisqually River	<i>Functioning at Risk</i>
Upper Cowlitz River (17080004)	Clearfork Cowlitz River	<i>Functioning at Risk</i>
	Lower Cispus River	<i>Functioning at Unacceptable Risk</i>
	Middle Cowlitz River	<i>Functioning at Risk</i>
	Upper Cispus River	<i>Functioning at Risk</i>
	Upper Cowlitz River	<i>Functioning at Risk</i>

Table 5. Indicators from Table 1 of NOAA Fisheries (1996a) that could be affected (positively or negatively) by activities within each programmatic category (adapted from Table 5 of the BA).

Programmatic Category	Matrix Indicators																
	Water Quality			Habitat Access	Habitat Elements				Channel Conditions			Flow/Hydrology		Watershed Condition			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Road Maintenance	X	X	X	X	X	X	--	--	--	--	--	--	X	--	--	--	X
Aquatic and Riparian Habitat Projects	X	X	X	X	X	X	X	X	X	X	X	X	--	--	--	--	X
Rec. Site Maintenance	X	X	X	--	X	X	X	--	--	--	--	--	--	--	--	--	X
F/H/W/B/C Program Act.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Non-Com. Veg. Treatments	X	X	X	--	--	X	--	--	--	X	--	X	--	--	--	--	X
Pump Change Maintenance and Use	X	X	X	X	X	X	X	--	--	X	--	X	--	X	--	--	X
SFP and Ornamental Rock Collecting	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X
Rock Quarry Operations	X	X	--	--	X	X	--	--	--	X	--	X	--	--	--	--	X
Repair of Storm Damaged Roads	X	X	X	--	--	--	--	--	--	--	--	X	--	--	--	X	X
Road Dec/Oblit/ Storm/Inact	X	X	X	X	X	X	--	--	X	X	X	X	X	X	--	X	X
Discretionary Road Use Permits	X	X	X	X	X	X	X	--	X	X	X	X	X	X	X	X	X
Discretionary Right-of-Ways	X	X	X	X	X	X	X	--	X	X	X	X	X	X	X	X	X
Road Prism Salvage and Tree Clearing	--	--	--	--	--	X	--	--	--	--	--	--	--	--	--	--	X
Misc. Special Use Permits	--	X	X	--	--	X	--	--	--	X	--	--	--	--	--	--	X
Telephone and Powerlines Permits	X	X	X	X	X	X	--	--	--	X	--	--	--	--	--	--	X

1 = Temperature; Sediment/Turbidity = 2; Chemical Concentration/Nutrients = 3; Physical Barriers = 4; Substrate/Sediment = 5; Large Woody Debris = 6; Pool Character/Pool Quality = 7; Off-Channel Habitat/Refugia = 8; Width Depth Ratios = 9; Streambank Condition = 10; Floodplain Connectivity = 11 Change in Peak/Base Flows = 12; Increase in Drainage Network = 13; Road Density and Location = 14; Disturbance History = 15; Landslide Rates = 16; Riparian Reserves = 17.

Table 6. Species with designated EFH found in waters of the State of Washington.

Groundfish Species		Coastal Pelagic Species
Soupfin Shark <i>Galeorhinus galeus</i>	Sablefish <i>Anoplopoma fimbria</i>	anchovy <i>Engraulis mordax</i>
Spiny Dogfish <i>Squalus acanthias</i>	Bocaccio <i>Sebastes paucispinis</i>	jack mackerel <i>Trachurus symmetricus</i>
California Skate <i>Raja inornata</i>	Brown Rockfish <i>S. auriculatus</i>	Pacific sardine <i>Sardinops sagax</i>
Ratfish <i>Hydrolagus colliei</i>	Copper Rockfish <i>S. caurinus</i>	Pacific mackerel <i>Scomber japonicus</i>
Lingcod <i>Ophiodon elongatus</i>	Quillback Rockfish <i>S. maliger</i>	market squid <i>Loligo opalescens</i>
Cabezon <i>Scorpaenichthys marmoratus</i>	English Sole <i>Parophrys vetulus</i>	
Kelp Greenling <i>Hexagrammos decagrammus</i>	Pacific Sanddab <i>Citharichthys sordidus</i>	Pacific Salmon Species
Pacific Cod <i>Gadus macrocephalus</i>	Rex Sole <i>Glyptocephalus zachirus</i>	chinook salmon <i>Oncorhynchus tshawytscha</i>
Pacific Whiting (Hake) <i>Merluccius productus</i>	Starry Flounder <i>Platichthys stellatus</i>	coho salmon <i>O. kisutch</i>
		Puget Sound pink salmon <i>O. gorbuscha</i>

Table 7. Watershed Activity Table

5th Field Watershed	Road Maintenan ce (mi)	Repair of Storm- Damaged Rds (mi)	Road Decommissioning, Obliteration, Stabilization, and Inactivation (mi)	Road Prism Salvage, Tree Clearing, and Hazard Tree Removal (ac)	Aquatic and Riparian Habitat Improvement (stream miles)	Aquatic and Riparian Habitat Improvement (Riparian acres)	Fish, Hydro, Wildlife, Botany, and Cultural Programs (stream miles)	Fish, Hydro, Wildlife, Botany, and Cultural Programs (Riparian Acres)	Recreation Site, Trail, Admin. Struct., Ski Resort Maint., and Assoc. Public Use (Trail miles)	Recreatio n Site, Trail, Admin. Struct., Ski Resort Maint., and Assoc. Public Use (Site acres)
East Fork Lewis River, 1708000205	9	1	5	5	2.5	32	10	300	1	2
Merwin Reservoir-Lewis River, 1708000206	3	0.1	1	0	0	1.3	0.5	50	0	5
Muddy River, 1708000202	9	0.1	5	5	0	9	5	300	5	13
Swift-Reservoir Lewis River, 1708000203	5	0.1	0.5	7	0	0	0.5	50	4	19
Upper Lewis River, 1708000201	19	1.5	2	10	2	328	15	300	11	31
Columbia Gorge Frontal, 1708000107	18	2	0.1	0	1	5	1	5	1	4
Washougal River, 1708000108	0	0	0	4	0	0	0.5	0	0	0
Green River, 1708000505	4	0	0.1	4	0	53.3	0.5	5	5	12
North Fork Toutle River, 1708000504	0	0	0.1	6	0	0	0	0	3	0
Tilton River, 1708000502	0.5	0.1	0.1	5	0	0.5	0.5	3	0	0

South Fork Toutle River, 1708000506	1	0	0.1	2	0	0	0	0	1	1
Little White Salmon River, 1707010511	10	1	1	5	0	0	5	50	0.1	31
Mid. Columbia-Grays Creek, 1707010512	2	0.5	1	0	1	10	5	5	1	1
Mid. Columbia-Eagle Creek, 1707010513	1	0.5	1	0	1	10	5	5	5	0
Mid. Columbia-Mill Creek, 1707010504	1	0.2	1	0	0.5	5	2	5	0	1
White Salmon River, 1707010510	20	0.1	1	10	1	7	5	25	12	23
Wind River, 1707010512	12	0.1	3	8	3	92	15	500	6	104
Deschutes River, 1711001503	0	0	0	4	0	0	0	0	0	0
Upper Nisqually River, 1711001501	12	0.5	1	10	0	0.7	1	5	1	8
Clearfork Cowlitz River, 1708000401	3	1	0.1	2	0	0	5	5	2	50
Lower Cispus River, 1708000405	32	2	2	10	1.2	10	10	500	5.5	56
Middle Cowlitz River, 1708000403	16	2	1	8	0.3	1	5	50	0.5	0
Upper Cispus River, 1708000404	17	2.5	1	10	0.7	3	5	500	8	2
Upper Cowlitz River, 1708000402	11	3	1.5	5	0	0.3	5	100	0.5	1
Puyallup River, 1711001403	0	0	0	1	0	0	0	0	0	0
Kalama River, 1708000301	3	0	0	5	0	0.3	0.5	10	1.5	0
Lower Klickitat River, 1707010604 ***	0.5	0.5	0.2	0	1	10	5	2	15	0.5
TOTAL	220	22	30	131	15	579	112	2875	90	366

Appendix C

- Federal Analysis of Effects and Determination/ Project Consistency Form

Federal Analysis of Effects and Determination

Complete one form for each project or ongoing activity - multiple units can go on one form

I have reviewed the following project and have determined that it is consistent with the Southwest Washington Programmatic BO and that an individual project level BA is not required. (If the Effect Determination exceeds the typical range of effects allowed under this BA for given activity type in the Programmatic BA/BO, then a separate consultation is required.)

Name/Title of Project:

Programmatic Category (see Table 4 – Programmatic Table for Southwest Washington Federal Actions):

NEPA Document Type (EA, Categorical Exclusion) and Number:

Fiscal Year Project will be Implemented:

Project Lead:

Project Location and Size (identify all Watersheds/Subwatersheds affected and the units in each):

4th-Field Watershed	5th-Field Watershed	Subwatershed	Total Acres	Riparian Acres Treated	#Sites (admin, etc)	# Stream Miles

Project Effect Determination (circle): LAA NLAA NE

List rationale for Effects Determination:

Are the project's effects on the Checklist Indicators the same as indicated in the Programmatic

BA?

Yes No If No, indicate how and why the effects are different.

Is the project consistent with the Project Design Criteria for the appropriate category of the Programmatic BA/BO? Yes No

Is the project consistent with the Terms and Conditions in the Incidental Take Statement of the BO? Yes No (If No to either question, the project cannot be covered by the Programmatic BA/BO).

Briefly Describe Project:

If appropriate, list interrelated and interdependent effects here:

Fisheries Biologist Name:

Date:

Level 1 Team signatures: Date:
(applicable if Level 1 team reviews project)

Make 2 duplicates - the original goes with project or NEPA file; the first duplicate is maintained in District Biologist's files, the second duplicate goes to the Level 1 team representative.
